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S. HRG. 103–864

TRUCK LENGTHS AND SAFETY

4. C 73/7: S. HRG. 103-864

ruck Lengths and Safety, S.Hrg. 10...

HEARING

BEFORE THE

SUBCOMMITTEE ON SURFACE TRANSPORTATION

OF THE

COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION UNITED STATES SENATE

ONE HUNDRED THIRD CONGRESS

SECOND SESSION

SEPTEMBER 14, 1994

Printed for the use of the Committee on Commerce, Science, and Transportation

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TRUCK LENGTHS AND SAFETY

WEDNESDAY, SEPTEMBER 14, 1994

U.S. SENATE,
SUBCOMMITTEE ON SURFACE TRANSPORTATION OF THE
COMMITTEE ON COMMERCE, SCIENCE, AND TRANSPORTATION,
Washington, DC.

The subcommittee met, pursuant to notice, at 10:15 a.m., in room SR–253, Russell Senate Office Building, Hon. J. James Exon (chairman of the subcommittee) presiding.

Staff members assigned to this hearing: Clyde J. Hart, senior counsel, and William Clyburn, Jr., staff counsel; and Gerri Lynn Hall, minority professional staff member.

OPENING STATEMENT OF SENATOR EXON

Senator EXON. I want to welcome you and tell you that any statements you have will be made a part of the record at this point, without objection.

I would ask each of you please proceed to summarize your statements, and then we will have some additional questions. Mr. Chairman, your comments, please.

OPENING STATEMENT OF SENATOR HOLLINGS

The CHAIRMAN. Today, the Surface Transportation Subcommittee will receive testimony on the relationship, if any, between the length of trucks on the Nation's highways and traffic safety.

According to the National Highway Traffic Safety Administration, more than 4,800 people were killed in accidents involving large trucks in the United States in 1993. In other words, one out of eight traffic fatalities last year resulted from a collision involving a large truck.

This hearing is a step in determining whether, as some contend, the increased length of a truck increases its susceptibility to accidents and, if so, whether that susceptibility argues for a federally imposed "cap" of 53 feet on truck lengths on the national highway system. To others, there is no correlation between truck length and an increase in accidents and hence no reason for any additional cap on the length of such trucks. Those who hold this viewpoint also emphasize the benefits of the use of longer trucks and longer combination vehicles to the Nation's economy, such as increased shipping capacity and lower shipping rates.

The Commerce Committee has asked both sides to elaborate on their views and specify the evidence supporting those views. In addition, the General Accounting Office, which has authored a study on longer combination vehicles, and the Federal Highway Adminis-

tration, which has related studies underway, will give the committee the benefit of their research to date.

The issue is important. The information received today will help us to determine what action, if any, is necessary in this area. I look forward to the testimony of the witnesses.

Thank you, Mr. Chairman.

Senator EXON. Thank you, Mr. Chairman. As I had indicated earlier, I repeat for you and the panel which will follow, we have a very busy schedule on and off the floor of the Senate today, and we must move this hearing along just as quickly as we possibly can.

[The prepared statement of Senator Exon follows:]

PREPARED STATEMENT OF SENATOR EXON

The next order of business for the subcommittee is to consider the safety implications of truck lengths.

As chairman of this subcommittee, my first priority has been safety.

During consideration of the Intermodal Surface Transportation Efficiency Act also known as ISTEA, I offered successful legislation to freeze the length of longer combination vehicles (LCVs). After consulting safety experts, I was concerned that LCVs could pose serious safety problems, especially in crowded interstate corridors. The driving public also overwhelmingly agreed. I believe that the LCV freeze has worked well.

This hearing will consider the recently completed report by the General Accounting Office on the safety and efficiency of LCVs as well as proposals which would affect the length of single trailers.

Over the years, there has been a trend in some states towards longer and heavier trucks and trailers. The standard fifty-three foot truck length is being stretched to nearly sixty feet in some states. This trend poses serious questions about the safety of these vehicles, how they mix with increasingly smaller and lighter passenger vehicles as well as the effect longer and heavier trucks have on the nation's highway infrastructure. In addition, the private sector has built a very efficient intermodal network based on certain standardized trailer and container lengths. Will that investment be made obsolete by a rush to longer and heavier trailers?

I welcome the testimony of today's witnesses. All written testimony will be included in the record as if read and all witnesses are asked to summarize their statements to ensure sufficient time for questions and answers.

Senator EXON. So, we will be keeping our questions short. Also, we hope you will keep your statements as short as possible.

And, if we can come to order, we will begin by calling on the Honorable Rodney E. Slater for his testimony. Welcome, Mr. Slater. We are glad to have you here.

STATEMENT OF HON. RODNEY E. SLATER, ADMINISTRATOR, FEDERAL HIGHWAY ADMINISTRATION; ACCOMPANIED BY GEORGE L. REAGLE, ASSOCIATE ADMINISTRATOR FOR MOTOR CARRIERS, FEDERAL HIGHWAY ADMINISTRATION; AND GEORGE L. PARKER, ASSOCIATE ADMINISTRATOR FOR RESEARCH AND DEVELOPMENT, NATIONAL HIGHWAY TRAFFIC SAFETY ADMINISTRATION

Mr. SLATER. Thank you, Senator. It is a pleasure to be here.

Mr. Chairman, I am pleased to be here with my colleagues and with others to discuss vital issues involving the safe operation of our Nation's highways.

With me today, we have George Reagle, who is with the Federal Highway Administration. He is our Associate Administrator for Motor Carriers.

Also with me, to my left and your right, is George Parker, who is with the National Highway Traffic Safety Administration. He is the NHTSA Associate Administrator for Research and Development.

I would like at the outset, Mr. Chairman, to salute you for your diligent efforts to improve the safety of our Nation's transportation system.

And I would like also to note that the recently signed Hazardous Materials Transportation Authorization Act of 1994 is but the most recent example of that kind of commitment.

I would also like to say that as we talk about highway safety, we at the Department of Transportation view it as our No. 1 priority.

And even as we promote initiatives like the National Highway System, we do it from the vantage point of understanding how important it is going to be to highway safety.

As you know, the National Highway System is moving through the Congress. It has already passed the House overwhelmingly. It is now before the Senate.

This System of roughly 160,000 miles will carry over 40 percent of the Nation's highway traffic, with 70 percent of the Nation's truck freight traffic.

So, as we talk about this issue of weights and size as relates to trucks and motor carriers, we are talking about also the importance of improvements to our roadways that will help facilitate the movement, the efficient and safe movement, of those vehicles on our system.

Now turning specifically to the issue of truck size and weight, let me say that the relationship between truck length and safety and highway investment requirements and economic productivity is close. All of these items are inextricably tied one to the other.

Since in practice truck length issues cannot be separated from those involving truck weight, my remarks will cover both truck size and weight.

As detailed in my full statement that I will summarize here, we do not presently possess all of the necessary data and other information that will allow us to completely answer all the questions that will be raised.

But clearly with a commitment to safety and with the recognition of the important role that trucks play in our economy to keep America moving, we are gathering that kind of data, analyzing it, and will be in a position in the near future to be a bit more responsive to the specific questions that I am sure are out there to be answered.

Truck size and weight issues are extremely complex. They relate not only to local, State, and national economic performance, but to questions of safety and management as relates to our highway infrastructure.

A basic characteristic of highway networks is that automobiles, trucks, and buses must share a common roadway. The combination of large freight vehicles with smaller, lighter passenger cars causes special safety risk. Large vehicles impose great demands on their drivers and those with whom they must share the roads.

Their size and handling characteristics demand consideration in the design of our roadways. We believe that the National Highway System, which will allow us to focus on our Nation's most important roadways, as well as our emphasis and use of IVHS technologies that I have discussed in great detail in my statement, hold great promise in addressing the safety and congestion concerns associated with freight vehicles.

Also, we believe that the increasing number of long-haul shipments that occur on our rail system will also help us to deal with this growing concern.

Good truck size and weight policies should ensure, we believe, safe and efficient freight movement on our Nation's highways and intermodal systems. More and more, U.S. businesses are turning to intermodal solutions to address their transportation needs. I would like to mention that I am working closely with the Federal Railroad Administrator Jolene Molitoris on how our Nation's highway and rail systems can better be used to meet our transportation needs and concerns.

In recent years, though, this issue of truck size and weight concerns has been dealt with in many different contexts.

Previous studies typically have been focused on a limited set of specific truck size and weight options; investigated in sort of a haphazard or disjointed fashion.

I would like to note, though, that the most recent study by the General Accounting Office, in August 1994, did examine this issue in a somewhat more detailed and comprehensive way, dealing with both the economic and safety issues as relates to longer combination vehicles. Ken Mead is here today to talk about the specifics of that study.

Even though the GAO study concluded that economic benefits of extending LCV operations appear to outweigh added infrastructure costs, it did go on to note that safety questions concerning longer combination vehicles are less easily answered.

It is our desire, Mr. Chairman, to get to some of those answers. That is why, on June 14 of this year, when I testified before the House Committee on Public Works and Transportation, I announced a proactive, comprehensive effort on the part of the Federal Highway Administration and the Department of Transportation to address this issue in a very comprehensive way.

It is the first initiative of this kind in more than 30 years, even though, during that interim period, the importance of trucks in moving freight and goods in our economy has grown significantly.

We believe that viewing these issues in a broader context, as relates to safety, intermodalism, and economic productivity goals, will give us a better understanding of how to address the various truck size and weight concerns, viewing them in total, rather than dealing with it in a disjointed and haphazard fashion.

Already, we are establishing a multimodal advisory group, which will review plans and products. This advisory group includes representatives from the National Highway Traffic Safety Administration, and the Federal Railroad Administration.

Also, we will engage in extensive public outreach. The effort will have three phases. The first phase, which is already underway, will seek to synthesize information from various studies and ongoing re-

search concerning various truck size and weight issues. All of this is outlined in my full statement.

We hope that this effort will be complete by early 1995. We will then move on to the second phase, which will allow us to use these findings to make a preliminary evaluation of the various policy options that we have identified in previous major studies on truck size and weight policy, as well as to consider new options that are before us.

And in the third phase, we will extend this analysis to a greater understanding and focus on the demand for freight transportation that is expected to occur on our transportation system in both the long and short terms.

In closing, let me say, Mr. Chairman, that commodity movements have changed in terms of their location, mode and sensitivity, and we must consider change in responding to these new demands.

NHTSA has raised many issues concerning the braking systems of these vehicles that are helping to keep America moving.

It is our belief, also, that this extensive comprehensive analysis of the various reports and efforts that have occurred over the past 30 years, will give us a better understanding, better data, to deal and grapple with an issue that is becoming more and more important. As we engage in an economic war, if you will, that puts us on the international stage, we are forced to look for greater efficiencies and efforts to make our system more efficient and effective.

And we believe that this hearing is important in that regard. Mr. Chairman, we are very pleased to be a part of this hearing today, as we discuss this and other very important issues as relates to keeping America moving, keeping America competitive.

Thank you, sir.

Senator EXON. Mr. Slater, thank you very much.

[The prepared statement of Mr. Slater follows:]

PREPARED STATEMENT OF RODNEY E. SLATER

Thank you1 Mr. Chairman. I am pleased to be here this morning on behalf of the Department of Transportation to discuss a number of issues involving tbb safe operation of our Nation's highways. With me are Mr. George Reagle, the Federal Highway Administration's Associate Administrator for Motor Carriers, and Mr. George Parker, the National Highway Traffic Safety Administration's Associate Administrator for Research and Development.

Before I begin, I would like to take a moment to salute you, Mr. Chairman, for your diligent work to improve the safety of our Nation's transportation system. The recent signed Hazardous Materials Transportation Authorization Act of 1994 provides an excellent example of your commitment to safety and productivity. This Act not only ensures the continued safe transportation of hazardous materials, but also eliminates outmoded economic regulation of the trucking industry.

I would also like to take a moment to commend Senator John Danforth, the Ranking Republican member of this Committee and a tireless champion of transportation safety. When Senator Danforth retires at the end of his term he will leave behind many great accomplishments in the transportation arena, such as his contributions to the success of the Motor Carrier Safety Assistance Program, the Commercial Driver's License Program, and the Drug and Alcohol Testing Program.

THE NATIONAL HIGHWAY SYSTEM

The issues we will discuss this morning are of particular concern to the Federal Highway Administration (FHWA), especially in light of Congress' current consideration of legislation to designate the National Highway System (NHS). Approval of the NHS is the FHWA's highest surface transportation priority this year. We urge the Senate to act on S. 1887, the National Highway System Designation Act of 1994, which was approved by the Environment and Public Works Committee last month.

This is a "clean" bill—it contains no extraneous provisions, but merely designates the NHS and provides for Secretarial modifications to the System.

While the NHS, as currently proposed, includes only 4 percent of this country's public roads, it carries 40 percent of the Nation's highway traffic, 70 percent of the commercial truck traffic, and 80 percent of the tourist traffic.

Efficient, effective, and safe highway systems play a critical role in the U.S. economy since nearly all the essentials of modern life travel on them, whether in the delivery of supplies to production plants or shipment of goods to retail outlets. Transportation is an indispensable foundation of commerce as it provides access to raw materials, labor and markets. Maintaining and improving highway and motor carrier transportation services in a safe environment for the traveling public ensures entrepreneurs the freedom to adapt quickly to changing market conditions with confidence that the spatial barriers between markets can be overcome.

Highway freight transport policy can be fashioned to improve the Nation's long-term economic prospects and vitality. As in all public policy decisions affecting the interests of the public at large, a balance must be struck among the many goals. The relationship between transportation and economic development is obvious; it is clearly tied to the industrial and employment base. We know that good, dependable transportation is an important factor in any region's growth potential. The U.S. economy as a whole is highly integrated and is becoming more closely tied to the global economy. To retain and expand its economic vitality and competitive position, America must ensure that its producers and carriers have quality access to their markets.

Last April I had the opportunity to travel through 14 States in 14 days on a 3,500-mile road tour. Our tour started in Buffalo, New York, and wound its way south to the Mexican border at Laredo, Texas. As I traveled on mostly non-interstate roads and mainly on the NHS, I saw firsthand the condition of our Nation's highways. The purpose of my trip was to look, to listen, and to learn. I met with officials and I talked with highway users. I saw the critical importance of a highway network focused on moving people and goods. One thing I spent considerable time on was the area of motor carriers; for example, we stopped at the Flatrock, Michigan, truck weigh station, which is a major component of the Intelligent Vehicle-Highway System (IVHS) "Advantage I–75" project. This undertaking, which involves six States and the province of Ontario, will use IVHS technology to expedite the clearance and movement of commercial vehicles within and across State lines and international borders.

The ability of all vehicles, including trucks, to move efficiently, safely, and, therefore, reliably is a critical component of the success of our transportation system and the economy as a whole. We believe that approval of the NHS, which focuses Federal resources on an integrated network of highways linked to key intermodal6 points, is essential to America's productivity in the 21st century.

THE NHS AND SAFETY

While freight moves by all modes—highway, rail, water, and air—trucks represent a vital component of almost every delivery of cargo to its ultimate destination. Two statistics help to illustrate the importance of trucking to our economy: trucking represents 71 percent of the Nation's freight bill and 42 percent of the total tonnage hauled by all modes.

Because one of the principal reasons for this hearing today is to discuss the safety of longer commercial motor vehicles, I would like to address generally the relationship of the NHS to motor vehicle safety.

Recent years have seen a remarkable improvement in motor vehicle safety. In 1992, the number of fatalities on our Nation's highways fell below 40,000 for the first time in 30 years. Though last year's toll was slightly above 40,000, and though either figure is still too high, these numbers are remarkable when one considers that road traffic has tripled in that same time. Although the number of miles traveled on American roads has skyrocketed, the fatality rate—that is, fatalities per 100 million vehicle miles traveled—has dropped to a record low. If the rate were the same today as it was in 1956 we would be losing 134,000 people a year.

During this same period, heavy truck safety has improved dramatically. Clearly, though, safety problems involving heavy trucks are worthy of discussion and our concentrated attention. In 1982, the fatality rate for these vehicles was 4.9 per 100 million vehicle miles of travel. By 1992, however, this rate had fallen to 2.9 per 100 million miles. By way of comparison, from 1982 to 1992 the fatality rate for automobiles fell from 2.7 to 1.7 per 100 million vehicles miles traveled. The higher fatality rate for heavy trucks is largely a result of their size and weight.

Many agencies and groups as well as individuals contributed to the remarkable reduction of overall fatality rates on our highways. This reduction is a product of safety belts and airbags, crackdowns on drunk and drugged driving, enhanced motor carrier safety enforcement, better driving, the use of state-of-the-art technology to improve roadway design and vehicle safety standards—and more.

Just last month I went to Tampa, Florida, to attend an annual international competition of commercial motor vehicle inspectors. Fifty-five competitors representing every State, the Canadian provinces, and Mexico competed in the event to test inspectors' abilities to detect mechanical defects and other trucking safety hazards. This competition, won by a senior state highway trooper from Virginia, dramatically demonstrated what some 5,000 State enforcement officials do every day in their important roadside vehicle and driver inspections. Their efforts serve to keep potentially unsafe commercial vehicles and operators off the roads, to the benefit of every highway user.

We must also recognize the tremendous safety impact of the Interstate System itself. The fatality rate on Interstate highways is less than half the rate for other highway systems, despite the fact that it carries 22 percent of all highway travel in this country and 49 percent of our heavy truck traffic. It's not that people are extra cautious on the Interstates. Rather, modern design standards and access control have made the difference and they can be applied to any roads on or off the Interstate System. Constructing or reconstructing non-Interstate highways to standards appropriate for their function and the type and volume of traffic they serve will make a difference. We are committed to making that difference. You don't have to go all the way up to full Interstate standards to really improve highway safety.Designation of the NHS will allow us to take the next step forward in highway safety.

MOTOR CARRIER SAFETY

Mr. Chairman, I'd like now to discuss with you and the members of this subcommittee our pro-active agenda for truck safety. This is a direct outgrowth of the Secretary's Strategic Plan—safety being our highest priority.

Although the safety of commercial vehicles has improved, we will not be satisfied until we have a crash-free environment. One might laugh at this notion, but our vision for truck safety is to put programs in place to make this a reality in the long term.

Let me discuss the areas of emphasis I believe will help us get there:

First, human factors. We believe strongly that more emphasis must be given to this part of the equation. National Transportation Safety Board statistics show that across all modes of transportation 80–85 percent of the causative and contributing factors in crashes is human failure. We need to recognize this fact in our existing programs by widening them to include speed management, impaired driving, safety belt and motorcycle helmet usage, increased emphasis on fatigue research, and motor carriers' safety policies and procedures. We are currently doing in-depth research on fatigue to determine the magnitude of the problem as well as appropriate countermeasures. There is also some promising "in-cab" technology that may help in the long term. The FHWA is also working with the National Highway Traffic Safety Administration on some of these issues.

Mr. Chairman, we firmly believe that enhancing driver performance is a critical factor in improving commercial motor vehicle safety. Our joint efforts in the Commercial Driver's License program are proof that we can, along with our State partners, ensure that only qualified drivers are operating on our highways. With this in mind, we were very disappointed by the recent U.S. Court of Appeals ruling stopping our waiver program for drivers who currently could not meet the Federal vision requirements. This is part of our comprehensive research effort to study possible revisions to certain driver medical qualification requirements. We believe the waiver program would greatly increase our knowledge of the ability of drivers with certain vision conditions to operate commercial motor vehicles safely and is in accordance with the principles of the Americans With Disabilities Act. We designed into the program medical and experience safeguards to ensure that only drivers with clean bills of health from a medical expert and a demonstrated safe driving record would be able to participate.

We are also collecting considerable data on motor carriers and drivers. This includes accident and fatality data as well as the results of vehicle and driver inspections conducted at the roadside. In the future, we will place a very high priority on analyzing these data. We need to know causes, as well as relationships. For example, what is the relationship between out-of-service rates and accidents? What are

the characteristics of good and bad drivers? These are just a couple of the critical questions we are pursuing and that we will get answers to.

The questions that we can answer should be spearheading our program. They should be the underpinning for our efforts. I have spoken of one of those already—human factors. The critical questions we cannot answer should be resolved through research and evaluation.

That is our next area of emphasis—a very focussed research program that seeks to answer questions on human factors as well as technology.

Finally, we must pursue technology utilizing IVHS concepts so that we are effective and efficient in our work and allow safe drivers, vehicles, and motor carriers to be more efficient. There are other state-of-the-art technologies outside of IVHS. For example, we know that disc brakes, which dissipate heat better than drum brakes, are in much wider use in Europe than in the United States. We plan to expand, with the cooperation of NHTSA, the role of the Federal Government in encouraging the use of new technology.

This is the thrust of our new motor carrier initiatives. Let me discuss some important issues we have on-going or have completed in the last nine months.

- First, let me say that in all of our safety initiatives, we work hand-in-hand with those of our modal partners within the Department who are involved in related surface transportation safety matters. Our cross-modal safety efforts were highlighted in hearings before the House Public Works and Transportation Committee's Investigations and Oversight Subcommittee earlier this year.
- Last December, the Secretary took a strong safety position by banning the use of radar detectors for interstate commercial vehicles.
- We completed the rulemaking on private motor carriers of passengers, which extended the Federal Motor Carrier Safety Regulations to a class of operators not previously subject to Federal regulation. Now, buses operated by churches, civic associations, Scouts, and other charitable institutions will be subject to the safety standards. This was a contentious issue (since at least 1982), but we did the right thing for safety.
- We initiated a Washington, D.C., Beltway Task Force designed to make this road safer. Facilitated by our efforts, we have the appropriate people from the contiguous jurisdictions, not only talking with each other, but formulating substantive recommendations that will make a difference. The States have already approved elimination of trucks from the left lane of the Beltway. We held a follow-up meeting of this group in August to review accomplishments and plan future actions. We hope this effort in our own back yard will serve as a model for other cities.
- We have finished the first phase of our "zero-based review" of our motor carrier regulations, which seeks to take a fresh look at our regulatory program, to find out what the major problems are, and to create a new set of regulations primarily based on analysis, research, and uniformity.
- We are developing a five-State pilot study to determine the feasibility of implementing a Commercial Vehicle Information System to tie commercial vehicle registration to the safety fitness of motor carriers. A Steering Committee comprised of pilot State and industry representatives has been formed to oversee the study, which is scheduled to begin in early 1995. The potential benefits of this System include fewer accidents, improved data on carriers, more effective enforcement, and improved safety compliance. We believe that State and industry cooperation and support are crucial in making this effort a success.
- We have issued alcohol and drug testing regulations which cover over 550,000 motor carriers and over 6 million drivers, both inter- and intrastate.
- In cooperation with officials of the Maryland Department of Transportation, a few months ago we unveiled the "Sharing the Road" campaign with the distribution of over 500 TV public service announcements, 1,000 radio announcements, and nearly 2,000 press kits containing campaign information and print announcements. All of these are designed to improve the operation of vehicles, including trucks, on our Nation's highways.
- We have formally established an IVHS/Commercial Vehicle Operations unit within the Office of Motor Carriers to direct and manage successful implementation of the commercial vehicle operations program nationwide.
- As part of a plan to conduct analysis of motor carrier and driver data, we have created a new Analysis Division. This Division is responsible for implementing the Office of Motor Carriers Analytic Strategic Plan. A cornerstone of the Plan is the Motor Carrier Safety Summit to be held next March in Kansas City. This summit will provide a forum for the Department and other interested parties: to present viewpoints on industry safety issues; to promote the use of data and analysis in identifying and addressing safety problems; to promote additional emphasis on driv-

er and other human factors issues; and to identify industry perceptions regarding our program strategies.

• In June, the Secretary delivered to the Congress proposed legislation and a comprehensive, multi-modal Action Plan to reduce rail-highway grade crossing and trespasser accidents and fatalities.

• Lastly, we have issued important regulations on: the longer-combination vehicle freeze, State compliance with the 22 provisions of the Commercial Motor Vehicle Act of 1986, and with regard to sanctions for drivers who violate an out-of-service order—that is, who move their vehicle before the needed repairs have been made.

Mr. Chairman, our changes create a program that is preventive in nature, elevates the human part of the equation to a higher level and uses technology as our partner in achieving a more effective and efficient program.

TRUCK SIZE AND WEIGHT

Now let me turn to one of the principal subjects of this hearing—relationships between truck length and safety, highway investment requirements, and economic productivity. Since, in practice, truck length issues cannot be separated from those involving truck weight, my remarks will cover both truck size and weight. As I will explain in a moment, we do not possess the necessary data and other information to allow us to completely answer all questions on these matters. We are now instituting a plan to analyze all available data.

Truck size and weight issues are extremely complex; they relate not only to local, State, and national economic performance but to questions of safety and management of our highway infrastructure. A basic characteristic of highway networks is that automobiles, trucks, and buses share the common highway. The combination of large freight vehicles with smaller, lighter passenger cars causes special safety risks. Large vehicles impose great demands on their drivers and those sharing the road with them. Their size and handling characteristics demand consideration in the design of roadways. Increasingly, the environment in which the vehicle is operated is congested. The IVHS strategies I mentioned earlier hold great promise to address safety and congestion concerns associated with freight vehicles. So does the increasing number of long-haul shipments by rail.

At a time when transportation is becoming a larger part of the goods production as well as distribution systems, the effects of changes in regulation on productivity take on renewed significance. Good truck size and weight policy should ensure safe and efficient freight movement on our Nation's highway and intermodal systems. More and more, U.S. businesses are turning to intermodal solutions to their transportation needs. We in the public sector are working to foster this growing trend. To this end, I have been working closely with my colleague, Federal Railroad Administrator Jolene Molitoris, on how our Nation's highway and rail systems can be better used to meet our transportation needs.

More specifically, changes in truck size and weight policy should to the extent possible, address: highway and vehicle safety through a performance-based regulatory approach; efficient interstate and international commerce through advanced highway and vehicle technologies; streamlined, uniform, and enforceable administrative procedures and requirements for permitting and taxation purposes; compatible vehicle and infrastructure design; and equitable recovery of public costs.

Whether a given trailer length is safe depends mainly on inherent design properties, condition of maintenance, and the conditions under which it is used. Truck safety is a function of many things, for example, the amount and speed of traffic, the performance characteristics of the vehicles, the drivers' ability to avoid unsafe situations, and highway design and performance. The importance of the roads to be traveled is illustrated by the fact that while virtually all States now allow 53-foot trailers, some have adopted route limits for them. Many, perhaps a majority, also specify the maximum allowable distance between the kingpin and the center of the rear tandem axle (usually 38-41 feet). Route and kingpin restrictions serve to match vehicle maneuvering capabilities with the physical and dimensional limitations of a given route. Many of our city streets and intersections cannot accommodate such extraordinarily long semitrailers. This does not, in itself, mean that trailers more than 53 feet long cannot be operated satisfactorily on many highways, but we must be mindful of the constraints that exist in many urban areas.

COMPREHENSIVE SIZE AND WEIGHT STUDY

In recent years, truck size and weight issues have come up in many different contexts. Previous studies typically have focused on a limited set of truck size and weight options—limited in both the specific truck size and weight options investigated and in the highway systems to which those options would apply. The most

recent study is the General Accounting Office's (GAO) August 1994 report, Longer Combination Trucks: Potential Infrastructure Impacts, Productivity Benefits, and Safety Concerns, which examined economic and safety issues related to longer combination vehicle (LCV) use. The GAO study concludes that economic benefits of extending LCV operations appear to outweigh added infrastructure costs, but that safety questions concerning LCVs are less easily answered. The report goes beyond most other studies, however, in recommending that the Secretary of Transportation be authorized to take several specific safety-related actions if LCV use is to be expanded.

On June 14, I testified at a hearing on "Motor Carrier and Highway Safety Issues" before the House Committee on Public Works and Transportation. At that hearing I noted how fragmented our truck size and weight laws have become and how complex the interrelationships are among, safety, various modes, infrastructure investment requirements, and productivity. I committed the FHWA to conduct a comprehensive study of truck size and weight issues, the first such comprehensive study by the agency since 1964. This study, which is now under way, will provide the framework needed to rationalize our truck size and weight laws within the broader context of important safety, intermodal, and economic productivity goals.

I would like to outline important elements of our truck size and weight study for you today. A Multimodal Advisory Group within the Department has been established to review study plans and products. This advisory group includes representatives of the National Highway Traffic Safety Administration, the Federal Railroad Administration, the Office of Intermodalism, and the Office of Economics in the Office of the Secretary. Outreach with affected parties will be an important part of the study. For instance, the study plan will be published in the Federal Register for comment, and input will be requested from the Federal Highway Administration's National Motor Carrier Advisory Committee. Other opportunities for public input will be provided.

The FHWA plans to conduct the study in three phases. The first phase, which is currently underway, will synthesize information from previous studies and on-going research concerning various truck size and weight issues including:

- Current State truck size and weight regulations;
- Safety, including operating restrictions (e.g., lower speed limits, etc.);
- Vehicle handling and performance characteristics;
- Pavement and bridge impacts;
- Regional economic and industry impacts;
- Impacts on carrier and shipper productivity;
- Impacts on modal competition; and
- Environmental and global climate considerations.

An interim report summarizing results of this synthesis will be prepared and should be available in early 1995. The FHWA staff is now using all possible resources to accomplish the significant task of synthesizing the extensive literature in this area as well as tapping research that is currently under way in allied areas.

The second phase will use these findings to make a preliminary evaluation of the policy options that we have identified from previous major studies of truck size and weight policy options as well as recent proposals. The focus will be on updating these studies and evaluating their findings based on consistent key assumptions such as baseline forecasts of travel. We will also look at alternatives to moving goods by truck.

We consider a third phase to be necessary to extend that impact analysis to the demand for freight transportation that is expected to be placed on the system in the short and long runs. For example, the restructuring that is going on in our global economy has significant implications for freight transport. Commodity movements have changed in terms of their location, mode, and sensitivity to characteristics such as reliability of delivery times. The freight flow data which we have available today are old, vintage 1977, and thus do not capture today's use or tomorrow's trend. Beginning in 1996, various system data and network modeling capabilities will become available so that we can address the full implications of various options in the context of modern freight demand. We expect that the products of that analysis will be available at the end of 1996.

NHTSA CONCERNS

The FHWA's departmental partner, the National Highway Traffic Safety Administration (NHTSA) agrees with the GAO that the safety of LCVs could be improved by driver training and by restricting the routes on which LCVs are permitted to travel. NHTSA suggests that another area of concern, namely improved engineering and design to enhance vehicle safety characteristics, should be added to this list.

Over the past 15 years, NHTSA has conducted extensive research, testing, and analysis on the braking, handling, and stability of heavy vehicles, including LCVs. This work has led the agency to conclude that a number of technologies and design approaches can significantly enhance the safe performance of heavy vehicles.

For example, the braking performance of LCVs will be significantly improved when these vehicles are equipped with antilock brake systems (ABS). In response to Section 4012 of ISTEA, NHTSA issued a Notice of Proposed Rulemaking (NPRM), in September 1993, proposing that trucks, tractors, trailers and buses be equipped with antilock brake system to reduce deaths and injuries caused by jack-knifing and other losses of directional stability and control during braking. NHTSA earlier issued another NPRM, in February 1993, proposing high-speed stopping requirements for heavy vehicles. NHTSA has completed its review of extensive comments on both proposals and is now in the last stage of preparing the final rules.

Improved braking systems that include antilock systems will enable LCVs and other combination trucks to be optimally braked without losing directional stability or control due to wheel lockup. The safety risk of wheel lockup on an LCV is more critical due to the greater number of axles, brakes, and articulation points it has in comparison to other trucks.

In addition, NHTSA has developed two analyses and testing methods for evaluating the static roll stability and obstacle-avoidance maneuvering capability of heavy trucks. This research demonstrated that by judicious design choices, heavy vehicles can be designed to be more roll-stable, and that connecting multiple-unit vehicles with double drawbar dollies will enhance lateral stability and make them less susceptible to rollovers during evasive maneuvers.

NHTSA and FHWA also have jointly undertaken LCV studies, mandated by Section 4007(d) of ISTEA, that include a series of LCV road tests. The objective of these tests is to determine whether Federal Motor Carrier Safety Regulations should be changed to respond to the operating characteristics of LCVs and the special demands they may impose on their drivers.

NHTSA and FHWA are conducting two studies to meet these objectives. One is examining the operating characteristics of LCVs with regard to selected technologies, such as antilock brakes and double drawbar dollies. The, second study is an evaluation of how operating LCVs affect driver stress and fatigue. Extensive progress has been made in both studies.

CLOSING

Once these varied and comprehensive studies are completed, we in the Department will be able to address more fully the issues being discussed today. I wish to assure you, Mr. Chairman and members of the subcommittee, that we will keep you informed of our progress on these important projects.

Again, thank you for the opportunity to be with you this morning. I am glad to be able to discuss with you issues so important to the prosperity and well being of our country. I will be pleased to respond to any questions you may have.

Senator EXON. I just want to take a moment to say I appreciate your fine statement, and I appreciate the work you are doing in this area.

We are trying to get the facts and how these facts affect safety, No. 1, and economics, No. 2. All of this has to be put into the mix as we make a determination on what is right and what is wrong in these very controversial areas.

I also wish to thank all of you, and especially Secretary Peña, with whom we have worked in a very constructive manner ever since he has been the Secretary of Transportation. The testimony that you have given this morning gives me new confidence in the thorough job you and others under the direction of the Secretary do in seeking to give us information and your best judgment on what that information means to safety and the transportation industry as a whole.

Thank you for your comments, and I will have a few questions later on.

Mr. Kenneth Mead, we are very pleased to recognize you at this time. Thank you for coming here, and we are glad to have you before the committee once again.

STATEMENT OF KENNETH M. MEAD, DIRECTOR, TRANSPORTATION ISSUES, RESOURCES, COMMUNITY AND ECONOMIC DEVELOPMENT DIVISION, GENERAL ACCOUNTING OFFICE; ACCOMPANIED BY KENNETH LIBBEY

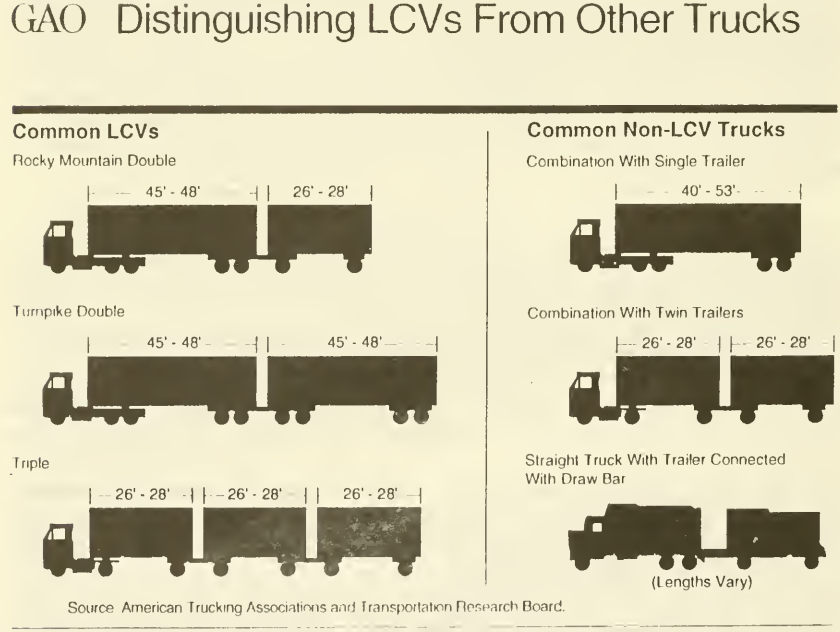
Mr. MEAD. Thank you, Mr. Chairman.

Mr. Slater, I would like to publicly send GAO's appreciation for the work the Department did in helping GAO conduct the series of three studies on these longer combination vehicles. All of these studies were mandated by, of course, the ISTEA legislation.

I have Dr. Kenneth Libbey with me. Ken helped—well, actually, he directed our work on LVC's in the most recent report we did.

I will be using three charts, Mr. Chairman. I am aware of your fondness for pictures and graphics. I would like to start with a little background on what LCV is. I believe in front of you, you have a——

Senator EXON. Yes, I have it here.



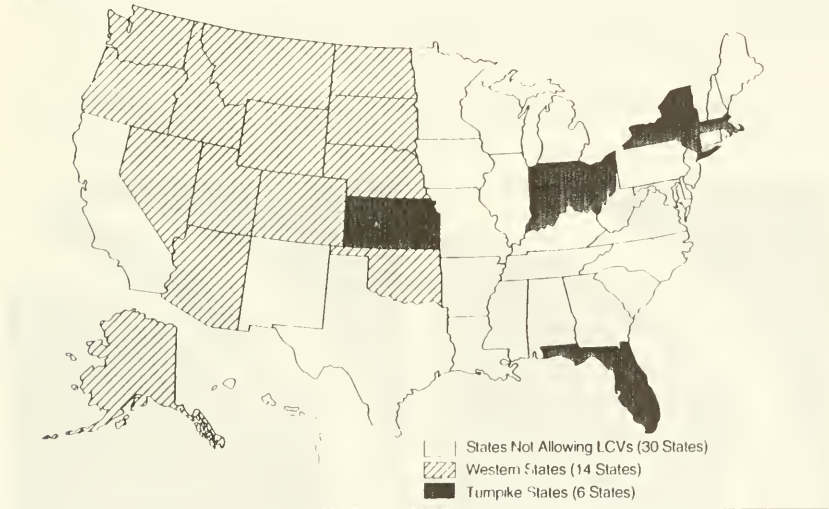
Mr. MEAD. This illustrates the three most common types of longer combination vehicles. A long and short trailer, which is called a Rocky Mountain double, a double 48-foot combination called a turnpike double, and a triple, which has three 28-foot trailers.

On the right side of the chart are combinations that are usually not considered LVC's. In 1982, the Congress required that States allow at least the double 28's and single 48's on the national truck network.

A double 28 is about 75 feet long, when you count the tractor and the space between the trailers. We consider anything longer than 75 feet to clearly be a longer combination vehicle.

Now, the Federal weight limit for the interstate highways is 80,000 pounds, but the Congress has allowed grandfather exceptions to that limit. There are 14 western States that use these exceptions to allow one or more types of LVC's to operate.

GAO States and Turnpike Authorities Allowing LCVs



Looking at the map, which is my second chart and is on page 5 of my written statement, these States are shown with the diagonal lines. And the six other States that are shown, these are shaded. And in these States, the turnpike authorities have allowed some LCV operations.

The 1991 legislation prohibited further expansions of LCV operations beyond the routes and types approved by States on June 1, 1991.

I would like to make just one overall observation to what all our work in this area says to us. LCV operations clearly can generate economic benefits, and those economic benefits will probably outweigh their incremental impact on the highway and bridge infrastructure. But they also pose safety risks.

They have not been a safety problem relative to other trucks on highways with low traffic density, but we would urge caution in allowing them on more heavily traveled highways and a variety of safeguards that we are recommending, if any exceptions are made to the current freeze.

I would cover just our key points. LVC's do reduce transportation costs for the simple reason that fewer tractors and drivers are needed and less fuel is used to transport a given amount of freight.

One study done for the trucking industry estimated annual savings of about $3.5 billion, or 3 percent of trucking costs.

LVC's, though, would also generate costs for the infrastructure. They probably would not increase pavement wear. And that is because LVC's spread their higher gross weight over more axles than other trucks.

But they would require some bridge replacements, widening of interchanges, and provision of staging areas adjacent to interstate highways.

Working with FAA, we would estimate that incremental costs would be in the neighborhood of $1.3 billion for interstate bridge replacements, $750 million to $2.2 billion for interchanges and staging areas.

GAO Triple and Turnpike Double on Cloverleaf Interchange

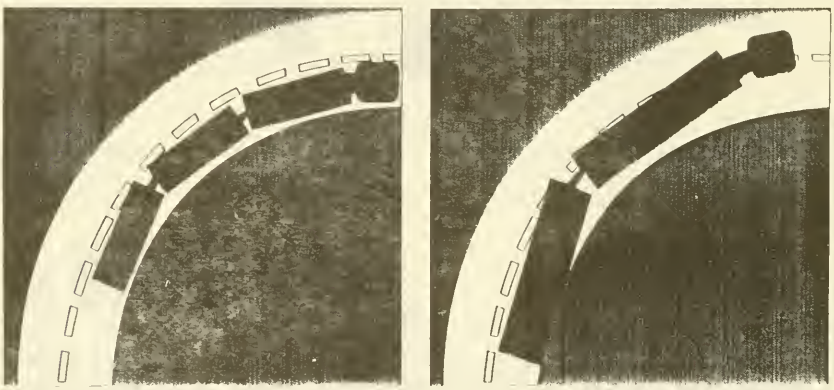


Chart 3 illustrates the difficulty that turnpike doubles would have negotiating an estimated 75 percent of the interchanges on the interstates. As you can see, part of the truck is going off into the other lane.

All those estimates assume national operations of LVC's. If you restrict them to the more suitable routes, both the costs and benefits decrease.

Senator EXON. Let me ask you a question. Put that back up there a moment.

Is that an exit ramp or an entrance ramp, or is that a——

Mr. MEAD. Yes.

Senator EXON. It is a ramp, where—in other words, there are no turns on the interstate, per se, that would cause that problem. It is when they exit or try to come back on the interstate system that this situation occurs; is that correct?

Mr. MEAD. That is correct.

Senator EXON. Thank you.

Mr. MEAD. If only selective expansion of LCV routes occurred, the beneficiaries would primarily be the so-called less than truckload companies. These are companies that consolidate shipments for many different customers.

These companies already have an extensive terminal network in the United States, and they can use these triple 28-foot trailers just like they use the double 28's now for trips between their terminals.

Large truckload companies that move cargo by the trailer load from a shipper's dock to a receiver's dock would benefit from the double 48-foot trailers, if a national network of highways were open to them.

But without a national network, managing turnpike doubles would be too cumbersome for their type of business. A patchwork route system just does not provide this group in the industry benefits.

I would like to turn to safety, which, as you pointed out, has to be the priority consideration. The safety risks of LVC's stem from operational characteristics that make them less stable and maneuverable than single trailer trucks.

LCV trailers tend to sway more, and sudden steering movements can have an exaggerated or so-called crack-the-whip effect on the very rear trailer.

LVC's can require longer distances to stop, and often lack the acceleration that is needed to move smoothly with traffic. Many States that allow LVC's have little data to monitor their operations, mainly because the data bases do not clearly distinguish between the LVC's that were on the left side of the chart and the LVC's that were on the right side of the chart.

Also, we found that many States had no special requirements for LCV drivers. We thought that driver qualifications were very critical to safe LVC's operations. And I should note that FAA is now considering LCV driver experience requirements.

We also found that LVC's were not inspected as often as the single combinations. And our analysis of inspection data suggested that triples may actually be better maintained than your single trailers, but that is probably not true of Rocky Mountain and turnpike doubles.

The available data on the safety record on LVC's is extremely limited. It is very thin. But it does suggest that the LVC's have not been a safety problem relative to other trucks on the turnpikes of western highways where they currently operate.

But you must view that record in the context of the less congested highways there and the operation of trucks by large companies with people with good driver records.

When we start talking about authorizing these trucks on more heavily traveled highways or in proximity to major metropolitan areas, LVC's could pose a greater risk to passenger traffic.

We made a series of suggestions in our most recent report to the Congress and to FHWA that would only apply if Congress made the policy judgment to lift the freeze, even if you wanted to lift it in part.

Thank you, Mr. Chairman.

Senator EXON. Mr. Mead, thank you very much.
[The prepared statement of Mr. Mead follows:]

PREPARED STATEMENT OF KENNETH M. MEAD

We appreciate the opportunity to testify on the results of our three issued reports on the safety and economic impacts of longer combination vehicles (LCV).[1] At least 14 states and six turnpike authorities permit limited operation of long multiple-trailer trucks commonly referred to as LCVs. LCVs can transport a given amount of cargo at less cost than shorter combinations because fewer tractors and drivers are needed and less fuel is used. As you know, our work regarding LCVs was mandated by the Intermodal Surface Transportation Efficiency Act (ISTEA) of 1991.

Our testimony focuses on three LCV issues: (1) the economic impact on infrastructure—pavements, bridges, and interchanges—that result from expanded LCV operations; (2) the potential benefits from and industry's use of LCVs; and (3) the safety of LCV use. In summary, we found the following:

- While generating benefits in the form of lower transportation costs, LCVs could also generate costs for public agencies that provide and pay for the infrastructure. Analyses of benefits and costs attributable to LCVs have been somewhat theoretical because of the various assumptions used to analyze data. LCVs would probably not increase pavement wear, but according to recent Federal Highway Administration's (FHWA) analyses, nationwide use of LCVs on the interstate highway system could require additional investments of $2.1 billion to $3.5 billion to replace bridges, improve interchanges, and provide staging areas for the breakdown and assembly of LCVs. Much of the projected infrastructure costs would be incurred in the more densely populated areas of the country. If LCV expansion were limited to carefully selected routes away from major population areas, the cost impact would be limited, but the benefits would also be reduced.
- A 1990 analysis for the trucking industry projected that nationwide use of LCVs on interstate and some primary highways would reduce annual trucking costs by about 3 percent, or $3.4 billion. As annually recurring benefits, these savings would exceed the one-time infrastructure investment costs estimated by FHWA. However, expansion of the routes open to LCVs would benefit some sectors of the trucking industry more than others. One sector, the large companies that consolidate packages or shipments under 10,000 pounds, could benefit immediately from even a partial expansion of LCV routes. These less-than-truckload companies have extensive terminal networks for collecting and distributing shipments, and they can use triple 28-foot trailers for trips between terminals. The truckload sector, which moves cargo by the trailerload from a shipper's dock to a receiver's dock, could benefit from double 48-foot trailers if a national network of highways were open to them. In the absence of such a network, large truckload companies have not adjusted their operation to accommodate doubles.
- Any decision to allow the expanded use of LCVs involves safety concerns as well as economic factors. We reported in March 1992 that LCVs have operational characteristics making them less stable and maneuverable than single-trailer trucks. LCV trailers tend to sway more and sudden steering movements can be amplified toward the rear of LCVs. Furthermore, LCVs can require longer distances to stop and often lack the acceleration needed to move smoothly with traffic. These characteristics of LCVs could make them a greater safety risk than single-trailer combinations if allowed on congested highways. We also found that states had limited data available to monitor LCV operations. Without such data, states may not recognize emerging problems as traffic density grows and as less experienced drivers and companies begin to operate LCVs. We believe that drivers' qualifications are critical to the safety of LCV operation and thus have recommended that FHWA include LCV driver experience requirements in the Federal Motor Carrier Safety Regulations.

In our August 1994 report, we said that if the Congress wishes to allow the expanded use of LCVs, it should authorize the Secretary of Transportation to consider exceptions to the freeze on LCV expansion only if requested by states and accompanied by the following:

- A state analysis of each proposed route to demonstrate its suitability in terms of the density of traffic, condition of bridges, and adequacy of interchanges. States

[1] Truck Safety: The Safety of longer Combination Vehicles Is Unknown, (GAO/RCED-92-66, Mar. 11, 1992). Longer Combination Trucks: Driver Controls and Equipment Inspection Should Be Improved, (GAO/RCED-94-21, Nov. 23, 1993). Longer Combination Trucks: Potential Infrastructure Impacts, Productivity Benefits, and Safety Concerns, (GAO/RCED-94-106, Aug. 9, 1994).

should determine whether additional infrastructure costs would be generated and how these costs would be recovered.

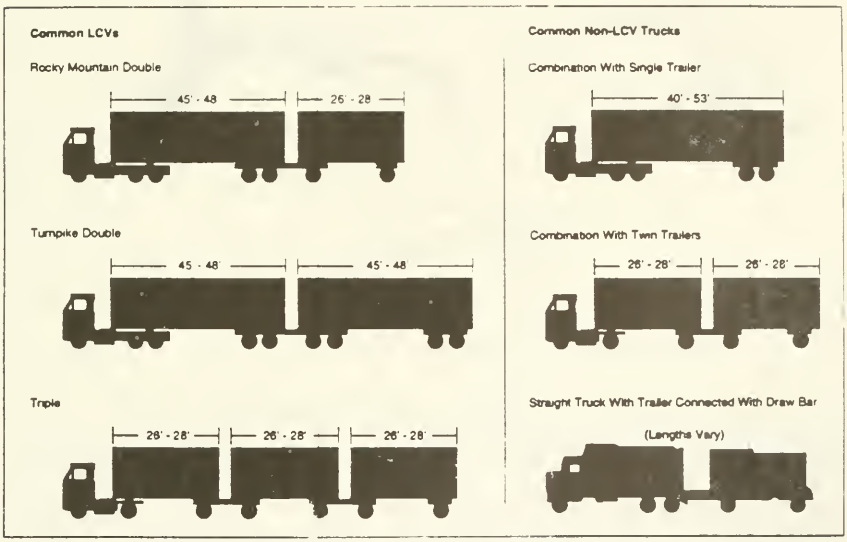
- A certification that the state will enforce qualification standards for LCV drivers, ensure adequate inspection of LCV equipment, and monitor the experience of LCVs to identify any emerging safety problems or negligent carriers.

Appendix I discusses recommendations contained in our first two reports. These recommendations to the Secretary of Transportation related to providing more complete information on the safety of LCVS and for improving truck accident and travel data.

BACKGROUND

The most common LCVs are triples (a third 28-foot trailer added to two others), turnpike doubles (a second long trailer added to a 45- or 48-foot single), and Rocky Mountain doubles (a short trailer added behind a long one). Figure 1 illustrates these LCVs and distinguishes them from combinations allowed to operate nationwide. Trucking companies, particularly in the West, also use variations of these configurations (particularly different types of trailers) for special transportation needs.

FIGURE 1: DISTINGUISHING LCVS FROM OTHER TRUCKS

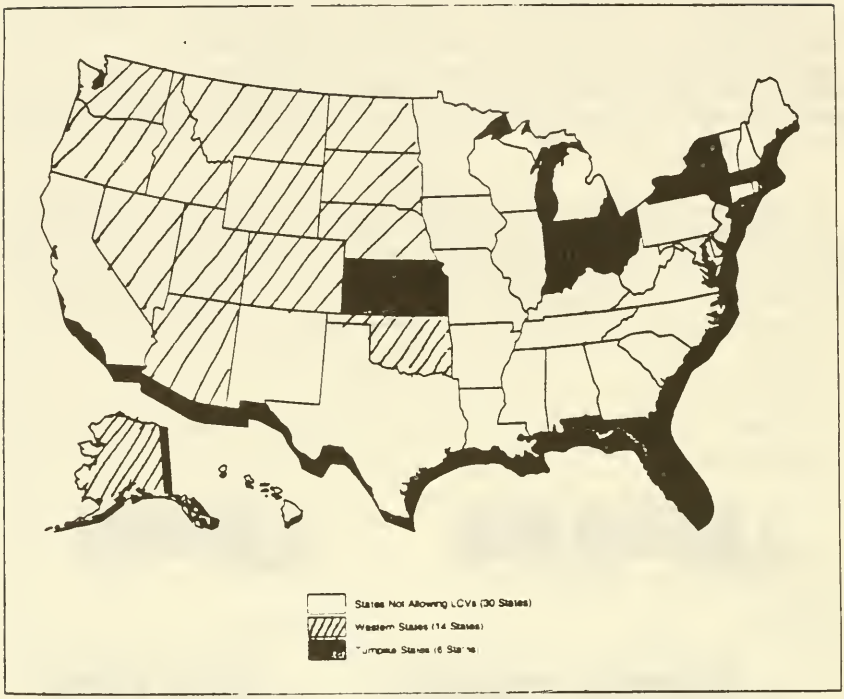


SOURCE: American Trucking Associations and Transportation Research Board.

Since 1974, federal law has limited gross vehicle weight on interstate highways to 80,000 pounds. However, 14 western states have allowed LCVs to operate at heavier gross weights under "grandfather" exemptions from the federal law. In addition, turnpike authorities in six other states allow some LCV operations. LCV operations are often restricted. For example, LCVs may be limited to interstate highways, and Nebraska only permits empty trailers on LCVs. On the other hand, Oregon allows triples on many state roads, and western states generally allow Rocky Mountain doubles to operate widely. Figure 2 shows 14 western states and six turnpike authorities that allow some type of LCV to operate.[2]

[2]ISTEA required FHWA to identify state regulations allowing LCV operations as of June 1, 1991. FHWA officials said that by using the technical definition of an LCV stated in ISTEA, their final rule will include some additional states allowing LCVs to operate and would not include Florida because its turnpike is not designated as part of the interstate system.

FIGURE 2: STATES AND TURNPIKE AUTHORITIES ALLOWING LCVS



LCVS COULD INCREASE INFRASTRUCTURE COSTS IF ALLOWED NATIONWIDE

Because LCVs spread their higher gross weight over more axles, they generally do not increase pavement wear relative to shorter combinations and may actually be less damaging. However, the higher gross weight of LCVs (especially turnpike doubles) can pose a load capacity problem for some bridges. Because bridges are designed to support much higher loads than expected, there is room for disagreement on the margin of safety deemed necessary for loads on a bridge. At our request, FHWA provided two different estimates or the number of bridges considered inadequate for LCV use and the cost to replace them. The Association of American Railroads, which views turnpike doubles as a threat to rail business, favors using a conservative bridge capacity rating to estimate the potential impact of LCVs. When FHWA used this rating, the analysis projected replacement costs of over $5 billion for rural interstates and over $13 billion for urban interstates. The second analysis, using a capacity rating considered by FHWA to be closer to that used in most states, projected $248 million for rural interstates and $1.1 billion for urban interstates.

In addition to bridge replacements, nationwide use of LCVs would require improvements to some interchanges as well as the provision of staging areas adjacent to interstate highways where LCVs could be assembled and broken down. The cost depends on how many points of access to the interstate system are deemed necessary for effective LCV operations. In 1985, FHWA estimated these access costs at between $750 million and $2.2 billion. A later study sponsored by the trucking industry questioned whether such extensive access was really needed. The study also noted that many of the access problems were in densely populated eastern states and that current states that allow LCVs already provided staging areas or let the private sector provide its own.

Infrastructure costs could also increase if LCVs diverted freight from railroads to highways. Several analyses have projected that nationwide use of LCVs (mainly turnpike doubles) would lead to such diversion and would increase trucking tonmiles from 5 to 16 percent. Most of these analyses were derived from a computer simulation model maintained by the Association of American Railroads. However,

as explained in our August 1994 report, the model has significant shortcomings. Most importantly, the model makes no allowance for ongoing productivity gains by the railroads, which have been substantial in recent years. These gains have made the railroads more capable of preserving their market share against trucking competition. As we reported, railroad intermodal service has improved and grown dramatically in recent years.[3] The model also assumes that the truckload sector will generally convert to using turnpike doubles, which is unlikely if LCV routes are expanded selectively.

BENEFITS AND INDUSTRY'S POTENTIAL USE OF LCVS

According to a 1990 study done for the trucking industry, opening the interstate system and some primary highways to LCVs would lower annual trucking costs by $3.4 billion (about 3 percent). Expanding routes open to LCVs would benefit some sectors of the trucking industry more than others. For example, if expansion of LCV routes were limited to highways with low traffic density, the potential benefits would be lower and would apply mostly to companies that use triple 28-foot trailers to transport consolidated small shipments between terminals. These less-than-truckload and package companies make extensive use of double 28-foot combinations nationwide and add a third trailer wherever triples are legal.

On the other hand, officials of large truckload companies that sell by the trailerload see little opportunity in using turnpike doubles in the absence of a nationwide highway network open to them. These companies would have to change their mode of operation to use turnpike doubles (double 48-foot trailers). Their drivers often travel from shipper's dock to receiver's dock to another shipper's dock and so on until arriving at home. Such an operation requires close coordination even with single-trailer combinations but would be substantially more complex with turnpike doubles. Because turnpike doubles would be limited mainly to interstate highways, companies would have to organize pickup and delivery at a customer's dock by single trailer and then assemble doubles at staging areas. In the current fragmented system of LCV routes, truckload companies have not found it practical to organize such operations.

Even with a nationwide highway network open to LCVs, it is questionable whether turnpike doubles would be widely used in the truckload industry. Small companies and owner-operators would have particular difficulty in managing the logistics of wide area doubles operation. In some specific situations, however, small truckload companies and private fleets have used turnpike doubles or Rocky Mountain doubles profitably, and selective expansion of LCV routes would probably create some new opportunities.

SAFETY CONCERNS MAY JUSTIFY LIMITS ON LCV EXPANSION

Our March 1992 and November 1993 reports showed that LCVs have operating characteristics that can reduce their stability and maneuverability compared with those of single-trailer vehicles, making it imperative that drivers be well qualified. LCVs generally require longer distances to stop than single-trailer trucks. Stability is more of a concern for triples than for doubles, since triples are more apt to sway, and sudden steering movements can be amplified toward the rear. LCV doubles can present problems when merging into traffic because of their slow acceleration and can also be very slow-moving on grades. Doubles also need a wider turn path than do single-trailer trucks and can move outside their lane of travel, a condition called off-tracking.

Most of the data on traffic accidents fail to identify LCV configurations, making it difficult to determine their safety record. The limited data available from a few states and several large companies indicate that LCVs have not been a safety problem on the turnpikes and western highways where they have operated. Whether this record could be maintained in heavier traffic is open to question.

Efforts to study the accident rates of multiple-trailer trucks have reached differing conclusions concerning the safety of LCVs. Weaknesses in the data at both the national and state levels as well as differing study approaches contributed to the differences. For example, the lengths of trailers are rarely recorded on accident forms, making it impossible to separate accidents involving turnpike or Rocky Mountain doubles from those involving the double 28-foot trailers operated nationwide. Also, very little mileage data on LCVs are available, thus making it difficult to compare accident rates of LCVs with those of single-trailer trucks.

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[3] Intermodal Freight Transportation: Combined Rail-Truck Service Offers Public Benefits, But Challenges Remain (GAO/RCED-93-16, Dec. 18, 1992).

Trucking industry officials agree that to minimize the safety risks, LCVs need well-qualified drivers as well as proper loading and brake adjustment. However, our November 1993 report showed that most states that allow LCVs do little to monitor LCV operations, regulate drivers' qualifications, or inspect the vehicles. While guidelines from both the Western Highway Institute and the Western Association of State Highway and Transportation Officials recommend that drivers be experienced and have good safety records, very few western states have any special requirements for drivers. States also have not done special inspections of LCVs to monitor the condition of LCVs or the drivers' adherence to safety regulations, and some evidence suggests that the longer combinations have been underrepresented in roadside inspection programs. Considering these factors, any expansion of LCV routes should be subject to careful analysis and accompanied by better state supervision of LCV operations.

CONCLUSIONS

Any decision to allow the use of LCVs involves safety concerns as well as economic factors. While LCVs may require some additional public investment in the highway infrastructure, these costs appear to be exceeded by the recurring annual benefits in the form of lower transportation costs. The safety issues are less easily answered. The apparently good safety record of LCVs to date must be viewed in the context of the less-congested highways where they have operated and the use of triples mainly by large less-than-truckload and package companies with good safety records. A wider use of LCVs could bring them in proximity of major metropolitan areas and on more-heavily traveled highways, which would entail greater risks to the passenger traffic with whom trucks share the highways.

Analyses on the costs and/or benefits of LCVs have assumed that these vehicles would operate nationwide. If, for safety reasons, LCVs were kept off the more-congested highways, such as those east of the Mississippi River, this would significantly reduce both the infrastructure costs and potential benefits from LCVs. The most favorable cost-benefit ratios could be achieved through selective designation of suitable routes, taking account of traffic density, the capacity of bridges, the adequacy of interchanges, and the need for staging areas. To the extent that additional infrastructure costs are identified, states must decide how to recover them.

Triple-trailer combinations would show the most obvious economic benefit under selective route expansion because (1) they can be accommodated more easily by the existing infrastructure, (2) they can often operate out of company terminals with few new staging areas, and (3) less-than-truckload and package companies could expand the use of triples incrementally if additional states authorized them. Specific, limited uses can be found for turnpike doubles in a fragmented network, but substantial use of these combinations would require a national network of highways open to them. even with such a network, it is questionable whether these long doubles would be a viable alternative to the current trends in the truckload industry, which involve using longer single trailers and intermodal rail service.

This concludes my prepared statement. We will be pleased to answer any questions.

APPENDIX I—STATUS OF GAO RECOMMENDATIONS

Truck Safety: The Safety of Longer Combination Vehicles is Unknown (GAO/RCED-92-66, Mar. 11, 1992).

Recommendation: To improve transportation data and to help determine LCV safety, the Secretary of Transportation should improve truck accident data, especially as they relate to the reporting of nonfatal accidents, the estimates of truck travel, and the identification of truck configurations.

Status: FHWA is providing grants under the Intermodal Surface Transportation Efficiency Act of 1991 to states to adopt the uniform accident reporting form and data elements recommended by the National Governors' Association which also require reporting data on truck configurations. At least 23 states have adopted the form and data elements. FHWA plans to continue its efforts to get the remaining states to adopt these reporting practices. FHWA estimates it will take about 2 years for this effort to be accomplished.

Longer Combination Trucks: Driver Controls and Equipment Inspection Should Be Improved (GAO/RCED-94-21, Nov. 23, 1993).

Recommendation: To provide better and more complete information on the safety of LCVs, the Secretary of Transportation should direct the Administrator of FHWA to further investigate the safety of LCV operations through the targeting of LCVs for inspections or through special studies, such as the ongoing FHWA

study of LCV accident rates, and encourage states to use inspection data to monitor the adequacy of companies' maintenance.
Status: In January 1994, FHWA awarded a contract for a special study to determine the accident rates of 100 motor carries using LCVs. The contract is expected to be completed in December 1995.
Recommendation: To provide better and more complete information on the safety of LCVs, the Secretary of Transportation should direct the Administrator of FHWA to include in the Federal Motor Carrier Safety Regulations requirements concerning the driving experience and the past safety records of drivers assigned to LCVs to help ensure that drivers are adequately qualified to operate them.
Status: FHWA has considered including LCV driver experience requirements in the Federal Motor Carrier Safety Regulations and plans to publish in October 1994 a Notice of Proposed Rulemaking which establishes minimum training standards for LCV drivers.

Senator EXON. Let me make some brief comments now on this hearing which I have withheld in order to move things along.

Certainly, this is a very, very serious matter we are considering today. The safety implications of these longer trucks are a concern to many of us. As the chairman of the subcommittee, my first priority has always been safety, and I think the record clearly demonstrates that.

During consideration of the Intermodal Safety Transportation Efficiency Act, also known as ISTEA, which has been referenced here today, I offered successful legislation to freeze the length of long-combination vehicles—LCV's.

After consulting with safety experts, I was concerned that LVC's could pose serious safety problems, especially in crowded interstate corridors. The driving public also overwhelmingly agreed.

I believe that the LCV freeze has worked well. This hearing will consider the recently completed report by the U.S. General Accounting Office on the safety and efficiency of LVC's, as well as proposals which would affect the length of single trailers, which, I think most would agree, is also something which should be addressed.

Over the years, there has been a trend in some States toward longer and heavier trucks and trailers. The standard 53-foot truck length is being stretched to nearly 60 feet in some States.

In my view, this trend poses serious questions about the safety of these vehicles, how they mix with increasingly smaller and lighter passenger vehicles, as well as the effect of longer and heavier trucks and what effect they have on the Nation's highway infrastructure. In addition, the private sector has built a very efficient intermodal network, based on certain standardized trailer and container lengths. Will that investment be made obsolete by a rush to longer and heavier trailers?

I certainly welcome all of the testimony we are hearing today, as we seek answers to these and other questions that will be posed. As I have said earlier, all written testimony will be included without objection as a part of the record.

I appreciate the brevity of the statements by the first two witnesses on panel 1, and I will have a few questions. At this time, I am very pleased to recognize the ranking minority member of the committee, Senator Hutchison from the State of Texas, who has been involved very much in all of these matters for a long, long time.

I am pleased to recognize you, Mrs. Hutchison, for any opening statement or questions you might have.

OPENING STATEMENT OF SENATOR HUTCHISON

Senator HUTCHISON. Thank you, Mr. Chairman. Thank you very much.

I want to commend the chairman for calling this hearing, because, especially from my vantage in Texas, I have been concerned about the differentials between the trucks that are going to be coming in from Mexico under NAFTA.

With 75 percent of the traffic from Mexico coming through my State, it is important to me that we have some standards and that the standards be, perhaps not equal, but within a range.

And I hope that as we go down the line, talking about the differentials between the smaller trucks and the increasingly larger trucks on the highways, that we can look at NAFTA and its impact.

Obviously, Canada has higher standards than we do; Mexico even higher. By that, I do not mean higher safety standards, but higher weight standards.

So, I think that we need to look at this issue and determine what is the right balance here. I think that it is very timely and appropriate that you are addressing this issue.

I do have a long history of highway involvement, having been a member of the National Transportation Safety Board. Also, as a member of the Texas legislature, I cosponsored the bill to reorganize the Texas Highway Department, so that it would be organized in a way that would be more efficient.

So, I am very interested. I am interested in truck safety and highway safety, and I am hoping that we can come to some terms that will be right for the truckers and efficient for the truckers, but also safe for passengers in our highway system.

So, thank you very much. I am looking forward to hearing what you say. I do have to make a speech on the floor, so if I step out, it is not for a lack of interest, but because there is a limited debate time, and I am committed to making a speech.

So, thank you. I will read the testimony, if I do not hear it, and I will work with the chairman to do something that will bring a balance of efficiency for our truckers and safety for our passengers.

Senator EXON. Senator, thank you very much, and we appreciate your coming by. As I said, it is a very busy time for all of us here, especially with what is going on on the floor today.

I assume that you may have some additional questions for the record, among others, and I would certainly advise this panel and those which follow that we need the replies as quickly as possible for inclusion in the record. I am going to limit the questions I have for the hearing this morning and will have some additional questions to ask of you for the record.

Let me start out with you, Mr. Mead. Certainly, you and your organization have done an exemplary job over the years in a whole series of areas. I was particularly impressed with your early comments about the close working relationship you had with the Department of Transportation on this extremely important matter. It

bodes well for us to get the information we need to make the right decisions.

Do you or your study conclusions apply to non-LCV vehicles?

Mr. MEAD. That is a difficult question. Technically, no. Technically, all of our recommendations were directed toward if you were to retain the authorization for LVC's that were out there now, some things you would do, and if Congress had decided to lift the freeze, even in those States that already allow some LCV operations.

However, I should say that some of our recommendations on the data that you need to assess how safe these vehicles are do pertain to non-LVC's. And, also, some of the special driver requirements, I think, would pertain to drivers, say, of very heavy trucks. You can have very, very heavy trucks that are not very long.

Senator EXON. Thank you very much. I appreciate that. I thought it basically might be what you wanted to say. There obviously is an interrelationship between all of these things. I think every witness that we have had has made reference directly or indirectly to the certification of the drivers. It all comes back to this: In certain cases, you could have a truck with a certain weight or a certain length which may be very heavy and very long. I would suspect most studies likely would show that such a vehicle moving down the road with a highly qualified and trained driver is not nearly as dangerous as that same vehicle moving down the road with a driver who has a license to drive something other than the monster which is rolling along the road which people in smaller cars are trying to get around.

So, I think that it is important that we recognize training, experience in drivers of trucks is very, very important. This leads me back to the comments made by Senator Hutchison with regard to NAFTA rules and regulations and what may happen when those trucks start rolling across the highways. I addressed this on the Senate floor during the NAFTA debate. I think it is something we are going to be wrestling with a great deal.

Also, the statements you made, Mr. Mead, with regard to what one's States do and do not do, I notice—I believe I noticed correctly that Nebraska's neighbor to the south, Kansas, has approved longer trucks than we have at the present time in Nebraska.

Did I read that map correctly?

Mr. MEAD. Yes, you did. Nebraska lets them travel empty.

Senator EXON. Nebraska what?

Mr. MEAD. Lets them travel empty, if I recall correctly.

Senator EXON. I see.

Mr. MEAD. It is a patchwork quilt all the way around. I think you are quite correct. And the Senator was pointing out about Texas with NAFTA, and in looking at a chart that is in one of our reports here about the States that currently use LVC's, and the differences in licensing requirements, years of experience of driving, training, equipment inspection requirements, all over the map.

Senator EXON. I remember well, back when I was Governor of Nebraska—and I do not remember what the length was at the time, but it was considerably less than now—we had a restriction in Nebraska. I don't remember the map, but I believe every other State on Interstate 80 had authorized a longer length.

I think Nebraska and Iowa were the only two holdouts. What we found happening, of course, was that the truckers were going on Interstate 80 as far as they could go with their longer trucks. Then they would divert to some other route, which, to me, did not make a whole lot of sense from the standpoint doing what was right safetywise or otherwise. I finally agreed to an extension of our limits. And then finally, Iowa followed suit.

But once we set up this patchwork system of some States allowing them and some States not, we started a domino effect, it seems to me. Economic pressure begins to build and build and build. Why not, if the State next door does it? This is why this other legislation is important.

Mr. Slater, let me turn to you. What would it mean, in terms of safety on the roads, should the freeze on vehicle length be repealed?

Mr. SLATER. Mr. Chairman, if the freeze is repealed, then clearly, States would have a lot more options to increase their size and weight limits, and that could pose a serious problem.

The freeze gives us a snapshot of the situation as it is. I think it sets the stage for us to be aggressive at the Federal level, which is what we are trying to do with the comprehensive study, to begin a process that allows us to look at the entire picture, rather than dealing with these issues in a sort of hands-off/hands-on, give-and-take approach that has occurred over the last 30 years. That is what we are committed to.

I would also like to say that the Department of Transportation is moving very aggressively when it comes to responding to the challenges of NAFTA.

Senator Hutchison, right after—well, the beginning of this year, we held, through the Secretary's leadership, a trinational summit to deal with these very concerns.

We are now in the process of working with our Canadian and Mexican counterparts to harmonize the various rules and regulations governing motor carriers. So, our objective is to be proactive.

We also have planned in March of next year a truck safety summit that will be held in the west, in Kansas City, to deal with this whole issue of safety, as it relates to the trucking industry, because it is so critical.

And as we become more aggressive in seeking to remain competitive in the global economy, we have to address this issue. Trucks help to keep America moving, and we also have to look to the other modes of transportation to pick up some of the slack, as well.

The final point I would like to make is that recently, I had occasion to travel across America. In April of this year, I started on our border to the north in Buffalo, NY, and I traveled over 14 days, through 14 States, 3,500 miles, and I ended up in Laredo, TX.

It was to look, listen, and learn and to really become more knowledgeable and sensitive to the issues that we have to address if we want to really secure and retain a leadership role in the global economy.

Trucking and the movement of goods and services and the use of our entire transportation system will play a very important role in that regard.

So, what is going on here today at this meeting is so very, very important to the economic security of our nation. And we are going to be proactive in addressing these concerns that are before us.

Senator EXON. This is a devil's advocate question which I will answer partially. Maybe it is a softball question for you, but I think it is something which needs to be said.

You have just explained the difficulty with all of these States making their own decisions which should be overridden and dictated by the Federal Government, how does this affect a State's former Governor and traditionally States' rights Senator, such as myself?

Senator HUTCHISON. And me.

Senator EXON. And Senator Hutchison. I did not think you were Governor.

Senator HUTCHISON. No, but I am a States' rights Senator.

Senator EXON. I suppose the answer to this is that under our form of Government, there are some things, and interstate highway travel and traffic is one, which need regulating, primarily from a safety standpoint, so that the safety interests of all of the citizens, regardless in which State they live, are adequately protected.

Is that the answer to the devil's advocate question I posed?

Mr. SLATER. That is the answer, sir. And clearly, it is a difficult issue. We are always engaged in the process of balancing the wants and desires of all who wish to clearly enjoy the full freedoms guaranteed by our form of government. That relates to States, as well as individuals.

I might note that my primary experience has been at the State level, as well, 6 years as a member of the Arkansas Highway and Transportation Commission. So, I am very sensitive to the point that you raise.

But clearly, when it comes to safety, that has to be the No. 1 concern of the Department of Transportation. That also has to be a No. 1 concern that we work through with you, as members of this committee, so interested in safety, as well as economic development, job creation, et cetera.

So, we just have to engage in the delicate balancing exercise. But we have had over 200 years of experience in dealing with that, and I think in this instance, we will be successful here, as we have been in the past.

Senator EXON. I have one last question, Mr. Slater: Does trailer length have any impact on the promise of intermodal traffic? That is, can rail and seagoing equipment accommodate larger trailers?

Mr. SLATER. That is a good question. And really, the point was alluded to a second ago, when you were talking about how the industry, especially the shipping industry and rail interests, have put together systems that allow them to accommodate trailers at certain lengths.

So, clearly, we have to be sensitive to those kinds of expenditures. But I would think that with everyone working together and realizing that no one mode of transportation can accommodate the transportation needs of the country to be competitive in the global economy, then those kinds of issues can be addressed in a forthright, sensitive fashion.

And clearly, when we talk about the increasing lengths of trailers as relates to tractor-trailers, we will definitely pursue and address that issue.

That is why we have started this proactive comprehensive effort within the Department of Transportation that includes more than just officials within the Federal Highway Administration to help us get a handle on what is happening out there and how we must be sensitive to changes in the private sector.

Senator EXON. Thank you, Mr. Slater.

Do you have further questions, Senator Hutchison?

Senator HUTCHISON. Yes, Mr. Chairman. I would just like to ask a couple of questions.

First, I wanted to clarify that I am a States' rights Senator, but I do think interstate commerce comes into play here very much.

I am also sensitive to the difficulties that there would be for a person trying to take a product from Texas to California and having to have different lengths or different weights that would mean you would have to take part of it off.

I think that is going to be a burden on interstate commerce. So, I did not want my comments to be taken that I think you should be having to take parts on and off trucks as you go through States. I think that would be nonproductive.

But, I would like to ask you, as it relates to NAFTA, Mr. Slater, if you have an idea of how much harmony we would be able to get. I do not want our truckers to be at a financial disadvantage with the higher weight limits of Mexico and Canada.

But, on the other hand, I do not want to have our safety compromised by having a special permitting process for Canadian or Mexican trucks that would add wear and tear on our highways or safety risk for our travelers.

So, where are you looking, in general terms, for an equity here?

Mr. SLATER. That is a very good question, Senator, and I think that is why the Secretary was so quick in responding to the transportation issues that NAFTA would necessarily require one to address.

The trinational summit that I mentioned, that occurred earlier this year, actually was the first event, if you will, held by this administration responding to the passage of NAFTA.

And it was done because of a recognition of the importance of transportation in making this a job-creating agreement in reality, rather than just in concept, or in theory.

Because the President, in promoting NAFTA, noted that it would be a job-creating effort that would bring jobs to this country, I can assure you that it will be our commitment to ensure that our transportation industries are not put at a disadvantage when it comes to the harmonization process.

And also because of the commitment that we all have to safety, we at some point will have to reconcile those two interests.

But clearly, it will not be our desire to participate in a process that will result in our transportation industry being put at a disadvantage when it comes to harmonizing our rules and regulations as relates to the motor carrier interests involving Mexico and Canada.

Mr. MEAD. And I should say that this is a very important point you raise, because the typical U.S. truck, empty, weighs about 28,000 pounds. The typical Mexican truck, empty, weighs 45,000 pounds.

Senator HUTCHISON. Let me just finish, because I know I have to go. But just tell me how you are going to approach it. Will there be notices of proposed rulemaking? Will there be bilateral negotiations? Is there a commission that will be set just for this?

Just in general, what is your approach, so that everyone will be able to have input?

Mr. SLATER. The process will include some of all of that. We will definitely be in contact with interested parties, both in the public and private sector, to get their input.

There have been various committees established that involve the participation of all interests who are concerned about this issue.

The process is ongoing. The trinational summit, transportation summit, that was held was really the kickoff of that effort, the beginning of that process.

And we are going to be in there negotiating in the tough spirit that has characterized our negotiations with our trading partners on a number of fronts, and we are just going to ensure that we are not put at a disadvantage.

There will be a number of opportunities for participation, and we will be in touch with the members of this committee as we move forward.

Senator HUTCHISON. All right. Thank you.

Mr. Chairman, I do have some other questions that I would like to submit for the record. Thank you.

Senator EXON. That certainly is in order. Thank you, Senator.

On that point, before you leave, Senator, I would just like to ask this question: Suppose, after all of the negotiations and hard-fought compromises, you agree that, under NAFTA, you are going to have a truck that is heavier and shorter or heavier and longer——

Mr. SLATER. Yes.

Senator EXON [continuing]. Than under the law that is affecting the United States, including Texas, at that time. What happens in that kind of scenario?

Mr. SLATER. Well, I think then we would find very helpful some of the activities we are engaged in currently. One, as we consider more requirements, qualifications for LCV drivers. We are in the process now of looking at that issue.

We would like to make those new requirements, if they become necessary, a part of the motor carrier safety regulations.

We hope to have a notice of proposed rulemaking beginning with that point either by the end of this year or January of next year. So, that is something we are doing.

Also, we have an ongoing study that we entered into the beginning of this year that deals with a review of the accident rates of longer combination vehicles, and we hope to have the results of that study in the near future, I believe sometime next year.

And then, again, our comprehensive effort to just look at all of our efforts in the past, as relates to the regulation of motor carriers and the regulation of the motor carrier industry, specifically as relates to truck size and weight.

Senator EXON. I can hear it now. Now hear this: We have worked very hard on this matter. These are our recommendations. We are going to accommodate meeting halfway the difference in weights and lengths between the laws in the United States and the laws in Mexico, and safety concerns are going to be taken care of. Do not worry about it, because we are going to have better trained drivers.

I am worried about that scenario, frankly. My question is: If you come up with that kind of a scenario, and after consultation with us, we say no, then what happens? Do the trucks come in anyway?

Mr. SLATER. Well, Mr. Chairman, I would hope that we would not come up with a scenario to which your response would be "no." I do believe that it is our effort not to just go in and merely compromise, but to clearly develop harmonization results that are win-win.

And clearly, it is not just a focus on truck size and weight that has to be the primary concern, as we engage in these negotiations and which country wins and which country loses, which has most of its way and which does not.

It has to be an effort by which we seek to make one, one and one something greater than three. And I think that is what the whole NAFTA process has been about, to say that we can build an economic zone that includes practically all of this continent, which can bring about goods that we can enjoy, that we can enjoy individually, but working together, we can enjoy collectively.

That is the way we are approaching it, not to just have a simple compromise where you cut it down the middle, but where we truly create a result that is win-win.

And if it is going to be win-win as it relates to this country and our interests, it has to help stimulate our economy. But it also has to address the issue of safety.

And those are two points that the Secretary has consistently made. We are going to do it in a way that ensures our continuing strength as an economic power, that supports the economic activities that we can all enjoy as partners.

But we also have an interest in safety in this country, and that will not be subordinated.

Mr. MEAD. Mr. Chairman, I believe the state of the law, from the work we did on NAFTA, is such that Congress would have to affirmatively act if it were to, say, permit higher weights for Mexican trucks, that affirmative action on the part of Congress will be necessary for Mexican trucks.

Senator EXON. Putting it another way, the final say-so would be with Congress in that regard, and the negotiators could not override whatever the law is. They would have to consult with us, come to Congress, and say: This is what we have come up with in our detailed investigation and review. We think it is permissible, although this has to be changed in our law, and that has to be changed in our law. Then it would be up to Congress to make a determination as to whether or not Congress wanted to go along with their recommendations.

Mr. MEAD. I just wanted to engage in a dialog with the Congress.

Senator EXON. I understand that. I was looking at the—well, you are forewarned. I think you are approaching it from the right position. I just wanted you to know.

Mr. MEAD. Yes, sir.

Senator EXON. Gentleman, thank you very much. There will be additional questions for the record. You are excused.

The next panel I am pleased to call at this time is Dr. Gerald A. Donaldson, Assistant Director for Highway Safety, and Ms. Kay E. Konz, Nebraska Volunteer Coordinator, Citizens for Reliable Safety and Safe Highways—CRASH.

Kay and I have worked together on a whole series of matters. I am very glad to have her here. She is accompanied by Joan Claybrook, the cochair of CRASH and president of Public Citizens. We are delighted to have all of you here.

We will start with you, Dr. Donaldson. Please proceed.

[A brief recess was taken.]

STATEMENT OF DR. GERALD A. DONALDSON, ASSISTANT DIRECTOR FOR HIGHWAY SAFETY, ADVOCATES FOR HIGHWAY AND AUTO SAFETY

Dr. DONALDSON. Thank you.

Let me first express my gratitude to the subcommittee and to you, Mr. Chairman, for this opportunity to present our views on truck length and related safety and infrastructure issues.

I am Gerald Donaldson, senior research director for Advocates for Highway and Auto Safety. We are a coalition of consumer health, safety, law enforcement, and insurance companies working together to improve highway and vehicle safety.

As you know, our written testimony has already been filed with the subcommittee. I'd like to summarize and extend my remarks, Mr. Chairman.

One of the major features of trucking operations that I would like to emphasize here today is the endless upward racheting of the lengths and weights of combination trucks.

And indeed, Mr. Chairman, you have even pointed that out yourself in the last several minutes.

Any gains in one of these sectors are always followed up quickly with inducements to one State after another to increase axle or gross weight limits or both.

Mr. Chairman, these size and weight increases have overwhelmed America's highways. We have supplied extensive documentation in our testimony through reports primarily from the General Accounting Office of the pavement and bridge damage these giant rigs inflict on our roads.

We have shown how even 48-foot-long trailers, much less 53- to 60-foot trailers, cannot negotiate even one-half of the interstate ramps and interchanges in the United States.

So, it is clear to us that the time has now come for a serious look by Congress at the need to establish legislation to complement the current LCV freeze, a Federal law that will level off weight increases and limit trailer lengths on major federally assisted highways.

And I emphasize here the word "complement," Mr. Chairman. I am sure that trucking representatives here today will characterize

the August 1994 GAO report on LCV's as a call for the LCV freeze to come to an end and return the use of LCV's to State choice.

We don't believe the GAO report justifies any relaxation of the current freeze on extending the types of rigs, routes, or other State operating structures presently in place.

The GAO conclusion of allowing State discretion once more to control LCV use is at odds with the evidence it presents on the safety of these big rigs. The LCV freeze should not be canceled.

It should be buttressed, buttressed by a cap on trailer lengths and a renewed Federal management role that controls the use of excessive weights and the misuse of permits.

While the LCV freeze has been in place for only 3 years, Mr. Chairman, the trucking industry has completed a national campaign for the 53-foot-long semitrailer as the new industry standard.

It has swept across the map of America. There is only one State now that is a holdout. And in point of fact, Mr. Chairman, the GAO stresses itself that almost no one today wants freight delivered in a 48-foot-long box. They want it in a 53-foot trailer.

So, if the LCV freeze were lifted, the safety community knows full well that the turnpike double composed of twin 53-foot long trailers is waiting in the wings. One State has already attempted to allow twin 59-and-one-half-foot-long doubles, a rig more than 135 feet long.

And it was reined in only by a strong letter from the Federal Highway Administration. And I say a strong letter, Mr. Chairman, because the only way the Federal Highway Administration can control that problem is through jawboning. Essentially, its legal authority was undermined in the 1982 STAA.

Now, in the interest of time, I will have to forswear other considerations. I would like to put before you today my brief remarks on the adverse effects of extra long, extra heavy trucks.

These are addressed in detail in my written testimony including highway cost responsibilities that are not being met by bigger, extra heavy accommodation.

And I would also just like to allude here, Mr. Chairman, to the multimodal purposes behind having a balanced transportation program.

That includes the National Highway System and Secretary Peña's recent initiative to have a National Transportation System with a balanced approach toward the movement of freight and people. The National Highway System will be a constituent part of the National Transportation System.

But last, Mr. Chairman, there is a special need here today to respond to an argument, an argument that is made repeatedly by the trucking industry that it regards as a hands-down legitimization of bigger and bigger combination trucks.

It is the claim that bigger, heavier trucks, including extra long semitrailer rigs and LCV's are safer trucks because the same amount of cargo is carried in fewer rigs, thereby reducing overall exposure to crashes both for the commercial drivers as well as for the motorists who share the roads with them.

I must say, Mr. Chairman, when trucking representatives invoke this argument, they apparently believe that we should be struck

dumb with its power. This argument does have immediate intuitive appeal.

But that is where its integrity begins and ends. The impression that the trucking industry wants to leave with you is that it is always playing a zero-sum game, that there is a limited number of trucks carrying a fixed amount of cargo and that it would be safer and produce less congestion to boot if fewer trucks carry the same amount of freight.

First of all, Mr. Chairman, trucking in this country is not and has never been a zero-sum game. Look at the increase every year in ton-miles of travel and tractor registrations.

I know that there are two phenomenons, two things that abhor a vacuum: nature and the American trucking industry. The drive is always for more freight, more tonnage, more trucks, and more State highways open to bigger and heavier rigs.

Is it true that a bigger, heavier truck will make America's highways safer? By no means. In fact, the evidence goes exactly the other way.

Not only are the dangers of LCV's already well documented as we did to justify Congress' adoption of the 1991 freeze, but bigger rigs, especially rigs over 80,000 pounds gross vehicle weight, are more dangerous than lighter combinations.

I am not going to take the committee's time right now, Mr. Chairman, to read the evidence into the record. I have it here in detail and will be able to supply it to the committee.

I just want to point out that apart from longer trailers even getting jammed in elevated freeway ramps, swinging out into opposing lanes to make turns, offtracking over highway center lines and lanes and terrorizing motorists who are next to them, and over curbs and shoulders, longer, heavier trucks cause more congestion apart from their safety problems.

The 1985 Highway Capacity Manual from the National Academy of Sciences, just as an example, calculated that a standard tractor-trailer with a 48- or even 45-foot trailer was already equivalent to several cars in its detrimental effect on congestion.

But no one has explicitly calculated the congestion effects of a slow-moving, 120-foot-long multitrailer rig weighing 130,000 pounds trying to climb up and down even interstate grades.

So, let me stop here with a brief recitation of evidence disproving the claim that we are better off with bigger, longer, heavier trucks. It is patently clear that it isn't even a wash.

We are worse off, especially in light of the fact that the trucking industry does not play a zero-sum game. It wants longer and heavier trucks and more of them on more roads.

As always, Mr. Chairman, we are happy to supply documentation for every claim I make in my remarks. I would be happy to respond to any questions or request for information that you and the other subcommittee members might have concerning our submitted written testimony or the additional comments I have just made.

Thank you.

Senator EXON. Doctor, thank you very much. I would remind you and the other witnesses that your statements have been incorporated. We will be taking a look with great interest at some of the

good backup material that you have presented. Thank you for your remarks.

[The prepared statement of Dr. Donaldson follows:]

PREPARED STATEMENT OF GERALD A. DONALDSON, PH.D.

Let me first express my gratitude to the Subcommittee and to you, Mr. Chairman, for this opportunity to present our views on truck length and related safety and infrastructure issues involving big trucks on our nation's highways and bridges. I am Gerald Donaldson, Senior Research Director for Advocates for Highway and Auto Safety, a coalition of consumer, health, safety, law enforcement, and insurance companies working together to improve highway and vehicle safety. Advocates is a not-for-profit Washington, D.C.-based organization that deals with both federal and state legislative and regulatory actions affecting passenger vehicle, truck, highway, and bridge safety. Although our headquarters are in Washington, D.C., our board members consist of a broad section of public and business representatives from every region of the country.

Mr. Chairman, big trucks impact our roads and bridges, and affect the safety of millions of Americans, far out of proportion to their numbers. Over the last forty years since the beginnings of the Interstate system, big trucks have gotten longer, heavier, and wider. But our cars during this period have gotten lighter and smaller, especially over the 15 years. In addition, the overwhelming majority of our roads and bridges were designed for much smaller and lighter trucks.

Even our Interstate system was designed for shorter, narrower, and lighter commercial vehicles. Despite extensive reconstruction and rehabilitation over the last decade and more, the current sizes and weights of big trucks stress the bridges, pavements, and other design features of this system beyond their tolerance levels.

The design evolution of our highways and bridges—even the Interstate system—has not kept pace with the constant growth in truck size and weight, especially over the past 20 years. Our pavement cannot withstand the punishment dealt by giant rigs, many running either legally or illegally overweight; our ramps and interchanges cannot allow these immense vehicles to move through an exit or safely turn a corner even on a multi-lane highways; and motorists who share the roads with big rigs suffer in incredibly disproportionate numbers from the crashes of oversized tractor-trailers. When big trucks and smaller vehicles tangle, the occupants in the cars, pickup trucks, or vans are sure losers: they suffer 98 percent of all the deaths, but only two (2) percent of those killed are in the big trucks.[1] Big trucks more than 26,000 pounds gross vehicle weight rating are only two (2) percent or less of the registered vehicles on our roads, but in 1993 alone they were responsible for 11 percent of all motor vehicle traffic fatalities—4,235 dead.

The combination of inadequate roads and bridges, downsizing of passenger vehicles, and the never-ending spiral of truck size and weight increases has had lethal consequences. But, Mr. Chairman, you may hear testimony today that will nevertheless portray a bright and shining record for big trucks in our nation. You will be told that big trucks are better than ever; the claim of longer trucks increasing both safety and operating risks will be downplayed or dismissed. Heavier trucks will be discounted as a source of increasing, devastating damage to our highways and bridges, and strong rebuttals will be lodged against any implication that big trucks don't pay their fair share for the use and destruction of our roads.

Even the latest General Accounting Office (GAO) report on longer combination vehicles (LCVs)[2]—will be claimed to liberate the trucking industry from the grip of the current LCV freeze. it will be argued that all the enormous evidence filed with Congress at the start of the nineties showing the dangers of LCVs is mooted—the line that Congress drew around LCVs to stop their expansion will be claimed to have been erased.

Is this true, Mr. Chairman? Is the LCV freeze just a big mistake? Or does it represent a thoughtful, far-seeing decision based on careful deliberation by Congress after it examined the record of how trucks continue a never-ending cycle of increases in length, then weight, then length, then weight, until they overwhelm our infrastructure and threaten our safety in an unprecedented manner? Does it reflect a major thrust of the Congressional transportation philosophy of the Intermodal Surface Efficiency Act of 1991 (ISTEA) to move beyond single mode solutions of freight

[1] Insurance Institute for Highway Safety, IIHS Facts 1994: Large Trucks.

[2] Longer Combination Trucks: Potential Infrastructure Impacts. Productivity Benefits. and Safety Concerns, GAO/RCED-94-106, August 1994 ("1994 LCV Report").

movement so that the pressures on our roads and bridges, and the dangers of giant multi-unit combination trucks, are not elevated to a higher level?

Congress is keenly aware of how trucks have grown over the years, how the industry has repeatedly used the strategy of approaching each state with the supposed economic benefits of bigger trucks, including multi-unit combination rigs with two or three trailers. When any state agrees to a longer "eighteen-wheeler" with a 53-, 57-, or even 60-foot semi-trailer, or agrees to raise its axle and gross weight limits, trucking industry representatives are quick to point out to adjacent states that they are now at a competitive disadvantage.

An so it goes, Mr. Chairman. Longer and longer trailers start rolling across the U.S. map. The longer rigs inevitably trigger subsequent requests for higher weight limits; heavier and heavier rigs are then allowed to operate, often with cheap permits. Finally, after a majority of the states have conformed to the higher size and weight limits desired by the industry, trucking industry representatives come to Congress with a request for federal pre-emption that forces recalcitrant states to accept longer, heavier trucks.

Although this Subcommittee has jurisdiction over truck length apart from weights, I want to emphasize today the inextricable connection of length and weight because the long-term strategy of the trucking industry has been to gain increases in one in order to leverage the other. For example, when higher axle and gross weight limits swept across the U.S. during the late sixties and early seventies, several states insisted that for safety and road preservation, it made more sense to keep lower axle and gross weight limits.[3] This resistance to higher weights, especially by a few key states, is what led to the trucking provisions in the 1974 Highway Act.

A new federal weight ceiling was permitted on the Interstate system at 80,000 pounds, with an increase in the single axle limit from 18,000 to 20,000 pounds and in the tandem axle limit from 30,000 to 34,000 pounds. The weight of commercial vehicles on bridges was also contr6lled by a combination of the 80,000 pounds gross weight ceiling and the Bridge formula which, among other things, controlled axle spacings. By the start of the eighties, all but three states had exercised the option to raise their axle and gross limits on the Interstate limit. The 1982 Surface Transportation Assistance Act (STAA) eliminated this remaining opposition to higher truck weights.

But these weight increases from 1974 to 1982 did not satisfy the trucking industry. The next step was to increase the capacity of each combination by the use of longer, wider trailers. Throughout the remainder of the seventies, semi-trailers grew another three (3) feet to 48-foot long units that were quickly labelled as the new "industry standard." Semi-trailers also fattened another six (6) inches, from 96 inches, or eight (8) feet wide, to 102 inches, or eight and one-half feet in width.

The industry moved swiftly after the 1974 legislative victory to claim one state after another for the longer, wider trailers. Simultaneously, expansion in the number of routes that would allow this bigger rig was argued in one state legislature and highway department after another. Along with the demand for bigger trailers on more roads were the rationalizations for more liberal overweight or oversized permitting practices. State after state agreed with these arguments—bigger trailers were allowed on more roads, and cheap permits that don't even come close to capturing the additional destructiveness of even slight increases in truck weights were put in place. Nondivisible load permits were issued willy-nilly for many commodities that clearly were divisible cargo that could and should be carried by two rigs.

But this wasn't enough. The nation was still a patchwork quilt of limitations on size, weights, and trailer lengths. The trucking industry wanted greater uniformity; it argued successfully for more federal pre-emption of state regulation of truck sizes. The truck provisions of the STAA were more far-reaching than any that had preceded it: Congress told the states to remove all overall truck and trailer length limits and to permit at least 48-foot long trailers, or twin 28-foot trailers, that were 102 inches wide. Furthermore, combination truck length limits were not only illegal on the Interstate, but also on a Designated National Network (DNN) of arterial highways that the states would select in cooperation with the Federal Highway Administration (FHWA).

That cooperation didn't last long. Many states, especially in the eastern half of the U.S., balked at allowing wider, longer combination rigs on their non-Interstate highways, citing safety reasons and highway design incompatibility for these exclusions. Many states submitted only a handful of routes that they argued could meet reasonable safety and infrastructure damage criteria.

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[3]The states, with few exceptions, also controlled either the overall length of trucks or capped the length of trailers. In general, the goal was to keep trailers at 45 feet in length.

When FHWA saw that many states refused to allow widespread operation of longer, wider combination trucks, the agency unilaterally prescribed what routes would be mandated in each state, thereby countermanding state judgments on the safety of their roads. The states were required to open up more than two-thirds of our Primary arterial highways to these bigger rigs, including thousands of miles of narrow, winding two-lane, two-way roads that many states closed to longer, wider, heavier trucks. This action provided bold underlining of the ability of the trucking industry to mount an offensive to secure bigger, heavier rigs on a state-by-state basis and then achieve federal ratification that brings reluctant states to brook.

I'd like to emphasize here, Mr. Chairman, the reason why Advocates and other members of the transportation safety community were enthusiastic about this Committee's willingness to address the issue of trailer length, including the need to set length limits on the incipient National Highway System. As you know, Congressman Oberstar has already introduced a bill in the House, H.R. 4496, aimed at controlling the continuing increases in single trailer length throughout the U.S. This is an action whose time has come. When Congress voided truck length restrictions in the 1982 STAA, it simply stated that a 48-foot long semi-trailer, or two 28-foot long units—a short semi-trailer pulling another short trailer—were the minimum lengths that would be required on the Interstate system and the additional Primary arterials selected to make up the DNN.

But no upper limits were established in law. As a result, the trucking industry has moved once again over the past several years to create the fait accompli of a new "industry standard"—the 53-foot long semi-trailer that has swept across the U.S. map leaving only a single state saying "no" to these bigger rigs on its highways. While this tide has lifted virtually all states to the longer trailer, another wave is set to move across the landscape. Many states now permit even longer trailers, some of them 60 feet long. After the 53-foot "industry standard," will a 57-foot "industry standard" be far behind?

In part, Mr. Chairman, this increase in single trailer lengths is a byproduct of the LCV freeze. Prohibited from seeking more states, more routes, and even bigger multi-trailer rigs, such as persuading a state to allow turnpike doubles or triples where only Rocky Mountain doubles operated before (a 45- or 48-foot long semi-trailer pulling a 28-foot long "pup"), the industry has instead exploited the fact that the 1982 STAA set no ceiling on what the states could allow on the DNN. This legislative deficiency will continue to plague us until Congress acts in accordance with the concept advanced in H.R. 4644 to set a maximum trailer length nationwide on key highways.

We cannot continue to restrict the use of LCVs without also putting a cap on trailer length. The trucking industry is adept at using increases in length as the basis for arguments that weight limits on the Interstate system must be increased. Once those limits are increased, as they were in 1974, further increases in trailer length are used as the pretext for appeals to Congress for federal statutes that increase the limits on axle and/or gross weights.

And even more powerful arguments are now being brought to bear, Mr. Chairman. With the advent of the North American Free Trade Agreement (NAFTA), the industry has a new, international lever to use in pressing for higher federal weight limits. Both Mexico and Canada have far higher axle and gross weight limits that we do, and Mexico has recently amended its weight laws to allow higher maximum gross weights for a variety of rigs in that country, including the standard "eighteen wheeler." Furthermore, both Canada and Mexico allow more axles in a group on the Interstate system than we do, including triple- or triaxles, as well as higher axle weight limits for single, tandem, as well as triple axles.

Right now, the Land Transportation Standards Subcommittee is conducting meetings among the three countries' representatives for the purpose of "harmonizing" trilateral trucking regulations. The biggest part of "harmonization," Mr. Chairman, is getting agreement on what will be the biggest, heaviest rigs that will be allowed legally to traverse all three countries. And just as some of our own states resisted the demands of the trucking industry for longer, wider, heavier rigs on more roads, often facilitated by cheap overweight permits, it is now the U.S. which is in the unenviable position of holding the line on our domestic weight and size limits.

Our negotiators got clear instructions from the Senate a year ago that under no circumstances were U.S. weight limits and safety regulations up for grabs in NAFTA truck harmonization discussions. We deeply appreciate your pivotally important role, Mr. Chairman, in foreseeing the threat of NAFTA for truck safety in the U.S. However, I'm sad to report that, despite this absolutely unambiguous instruction, the agency which has direct oversight responsibilities for enforcing Congressional weight limits on Interstate highways and bridges is trying to find ways to bring back a message to Congress that it is in the national interest to lift the

ceiling on axle or gross weights. The alternatives being discussed include eliminating the 80,000 pound gross weight cap and letting the statutory bridge formula control maximum weights in accordance with current single and tandem axle limits, or allowing the use of LCVs beyond the ISTEA freeze limits, such as through expanded use in the western U.S. or by creating special "NAFTA corridors." One of these scenarios—currently illegal under the ISTEA LCV freeze—is called "Canamex" which would operate Rocky Mountain doubles from Alberta Province through the western U.S. into Mexico.

Even if this effort at "harmonizing" our federal weight laws at higher levels or allowing the widespread use of LCVs doesn't succeed in the short run, you may be sure that the border states, especially those abutting Mexico which have mostly federal weight limits on both their Interstate and non-Interstate highways, are prime candidates for persuasion by the trucking industry that it is their interest to lift their size and weight limits on those non-Interstate highways that would prove attractive to cross-border truck traffic.

In most instances, these non-Interstate highways would be NHS candidates. This is why it is so crucial for both houses of Congress to look into the future and to see the need now to control truck sizes on the NHS. Without the controls of the Interstate system extended to the other 115,000 miles of priority routes forming the NHS, it is inevitable that the trucking industry will increase the pressure on the states to raise the size and weight ceilings on these roads and then to use an argument that appeals to the absurdity of bigger, heavier trucks operating on the non-Interstate highways of the NHS while only lighter trucks are allowed on Interstate highways.

Let me return to the issue of the LCV freeze. I mentioned earlier in my testimony that the recent GAO report may be interpreted to vindicate the virtues of LCVs. But is it true that the GAO report has endorsed an end to the LCV freeze?

I don't believe that a close reading of the arguments and considerations of the GAO support this view. GAO reports on transportation are well-known for the care and circumspection behind any conclusions and recommendations that are placed before Congress for its consideration. The current report on LCVs follows not only two previous reports devoted to LCVs, but also a host of other reports on infrastructure and highway user cost responsibilities in which the GAO explicitly considers the role that heavy trucking plays in both safety and highway damage. I would like now to review the findings of the GAO's August 1994 report on LCVs and to place those findings within the context of the observations and recommendations of a number of other recent GAO reports that address the issue of bigger trucks on our roads and bridges.

First of all, Mr. Chairman, I think I should point out here at the start of this review what the trade press thinks of the import of the GAO LCV report. For example, here is the headline and initial sentence of the August 22, 1994, issue of Traffic World:

GAO REPORT OFFERS TEPID SUPPORT, SOME WARNINGS ON EXPANDING USE OF LONGER TRUCKS NATIONWIDE

> Twin 48-foot and triple 28-foot trailers would be a productivity bonanza to some truckers but would be costly for governments to assure they run safely.

P. 19. Now, this is, of course, not the way the report was characterized in the stories of Transport Topics or the Journal of Commerce, Mr. Chairman, to no one's surprise. But let's allow the GAO report to speak for itself and then place GAO's findings in the context of its other reports that bear on trucking policy and practice. This should let us see if it is true that the GAO is recommending an end to the LCV freeze.

Right at the start of the report is a summary which states the following:

> LCVs could also generate costs for public authorities who provide and pay for the infrastructure used by the trucking industry. * * * [A]ccording to the Federal Highway Administration's (FHWA) analyses, nationwide use of LCVs on the interstate system could require additional investments of $2.1 billion to $3.5 billion to replace bridges, improve interchanges, and provide staging areas for the breakdown and assembly of LCVs. Much of the projected infrastructure costs would be incurred in the more densely populated areas of the country. If LCV expansion were limited to carefully selected routes away from major popu-

lation areas, the cost impact would be limited, but the benefits would also be reduced.[4]

Our quoted GAO summary appears to be a model of restraint and caution. But let's allow GAO to continue speaking for itself on the LCV issue:

> Any decision to allow the expanded use of LCVs involves safety concerns as well as economic factors. The limited data available on the safety record of LCVs show that they have not been a safety problem on the western highways and eastern turnpikes where they currently operate. However, GAO's previous reports identified operational characteristics of LCVs that could make them a greater safety risk than single-trailer combinations if allowed on more-congested highways.[5]

Furthermore, "GAO has previously reported that LCVs have operational characteristics, such as trailer sway, that make maneuvering in traffic more challenging than for single-trailer vehicles."[6]

Advocates does not agree with the assessment that LCVs have not been a safety problem. As we will show in other GAO quotations, it is well known that separate, accurate data on LCV mileage and crash involvement is quite poor[7] and that real ingenuity has to be applied to existing data bases on truck registrations and crashes to extract reliable conclusions on LCV safety.[8]

We believe that LCVs, on balance, are more dangerous. Advocates and other safety organizations presented our findings, including data analyses, to Congress on the eve of Intermodal Surface Transportation Efficiency Act (ISTEA) passage in 1991 documenting the safety problems of LCVs. I would be pleased to submit this information to the Subcommittee.

But GAO itself has a cautious view in its 1994 LCV Report of the safety consequences of LCVs, especially what could occur in expanded operations:

> LCVs have operating characteristics that can reduce their stability and maneuverability compared with those of single-trailer combinations. Stability is more of a concern for triples than for doubles, but heavier doubles can present problems when merging into traffic because of their slow acceleration and can also be very slow-moving on grades.
>
> Triples operating at highway speeds tend to exhibit trailer sway—a side-to-side movement of their multiple, relatively short trailers. This can be caused by a driver's sudden steering movements, poor maintenance of the converter dollies that connect trailers, rutted highways, or wind gusts. Rearward amplification of trailer sway—often called the "crack the whip" effect—is usually initiated when drivers make sudden steering movements to avoid obstacles and is also more pronounced for triples. Turnpike doubles * * * are slower to accelerate and move with traffic. Unless tractor power is significantly increased, speed differentials can present a hazard in traffic, especially on grades.[9]

Furthermore,

> Under less-than-ideal conditions * * * LCV braking can be less effective. Out-of-adjustment brakes, the most commonly found defect in roadside inspections, would be more serious for LCVs because of the greater number of brakes that must be properly adjusted and must work in the proper sequence. Also, if the last trailer is empty or lightly loaded, chances are greater that the trailer's brakes will lock and cause it to swine out to the side.[10]

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[4] 1994 LCV Report, p. 1. One of the trucking industry major consulting groups recommended a few years ago that one of the ways we could get these staging areas nationwide, especially in more densely populated areas where land adjacent to the Interstate system is prohibitively expensive, is to get Congress to allow public rest areas to be converted to staging yards for putting together and breaking down giant triples and Turnpike Doubles. No further comment should be needed on this idea.

[5] Id., p. 2.

[6] Id., p. 6.

[7] GAO points out in the 1994 LCV Report that it "previously reported that most states that allow LCVs do little to monitor their operations, regulate drivers' qualifications, or inspect the vehicles." Id.

[8] GAO recognizes this:

[T]he lengths of trailers are rarely recorded on accident forms, making it impossible to separate accidents involving turnpike or Rocky Mountain doubles from those involving the double 28-foot trailers operated nationwide. Also, very little mileage data on LCVs are available, thus making it difficult to compare accident rates of LCVs with those of single-trailer trucks.

* * *

[L]ittle is known about the safety of doubles, particularly Rocky Mountain doubles. The latter are operated * * * on a wider network of roads—many of these two-lane roads.

Id., p. 43.

[9] Id., p. 42.

[10] Id., p. 43.

This concern over the roadside inspections accorded LCVs is well-taken: the GAO stresses that it "found the out-of-service rate for doubles combinations exceeded that for all trucks inspected in 8 of 12 states" and that there is evidence that "the longer combinations have been underrepresented in roadside inspection programs."[11] As far as driver compliance with traffic regulations, the GAO points out that "because traffic citations do not specify vehicle configuration, states cannot monitor the performance of LCV drivers and their compliance with permit requirements."[12]

In sum, the GAO has serious doubts and misgivings about the safety of LCVs, including a concern that "[a] wider use of LCVs could bring them in proximity of major metropolitan areas and on more-heavily traveled highways, which would entail greater risks to the passenger traffic with whom trucks share the highways."[13] If the evidence on LCV safety is either unknown or adverse to their expanded use, how does the GAO assess the impact of these multi-trailer rigs on our infrastructure, including ramps and interchanges, and destruction of roads and bridges? In its 1994 LCV Report, it found that:

> The longer LCVs have difficulty negotiating some interchange ramps and also need staging areas where they can be assembled or broken down for delivery as shorter combinations. Modifying interchanges and building staging areas to provide LCVs regular access to and from the interstate system could be a costly undertaking, depending on the number of access points deemed necessary. * * *
>
> Because of their length, some LCVs off-track, or "cut corners", more than single combinations. This restricts their ability to negotiate intersections * * * Because of offtracking, the longer LCVs also have difficulty with some interchange ramps.
>
> Turnpike doubles have the most problems with off-tracking * * * Figure 2.3 illustrates the difficulty that a turnpike double has with cloverleaf interchanges * * * According to a survey done by AASHTO in 1985, state highway officials estimated that *as many as 75 percent of the interchanges on the interstate system were inadequate for turnpike doubles, 66 percent were inadequate for Rocky Mountain doubles, and 57 percent were inadequate for triples. It should be noted that respondents considered half the current interchanges to be inadequate for 48-foot trailers as well.*[14]

You will note that half of our Interstate interchanges could not accommodate a combination with a 48-foot semi-trailer. Let me stress in this connection that the current "industry standard" for semi-trailer length is now set at 53 feet.[15]

The GAO in its 1994 LCV Report quotes a FHWA 10-year old estimate of $750 million to $2.2 billion on the cost to reconstruct these ramps and interchanges, and provide other access changes, to meet the needs of all current types of LCVs.[16] In addition, it investigates costs from the correlative damage inflicted on roads and bridges by big trucks, including LCVs. For bridges, the GAO calculated two different load capacity ratings to use for bridge improvement cost estimates, the well-known inventory rating forming the basis of reporting to the federal National Bridge Inventory, and an "intermediate" rating of the GAO's own construction which is more demanding than the operating rating, but less so than the inventory rating. The GAO was unable to use the more liberal operating rating because FHWA claimed that state reporting of operating ratings were inconsistent.[17]

The use of the conservative, that is, inventory rating, produces projected replacement costs of over $5 billion for rural interstates and over $13 billion for urban interstates. The cheaper rating scheme was found to generate a cost of $248 million

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[11] Id., p. 44.

[12] Id.

[13] Id., p. 45. This GAO understanding of the enormous safety costs associated with the operation of big trucks appears repeatedly and consistently in its reports on safety and infrastructure. For example, in its 1992 report Intermodal Freight Transportation: Combined Rail Truck Service Offers Public Benefits, But Challenges Remain (GAO/RCED-93-16, December 1992), the GAO points out early in its considerations that

While the public has benefited considerably from the performance of the trucking industry, this has not come without a cost. * * * In accidents involving medium or heavy trucks with another vehicle in 1990, 220 truck occupants were killed compared with 4,057 occupants of other vehicles. Congressional concern over the safety impact of growing truck traffic has been reflected in * * * its 1991 freeze on routes authorized for double- and triple-trailer combinations.

Pp. 8-9.

[14] 1994 LCV Report, p. 26 (emphasis supplied).

[15] In informal discussions with highway officials, Advocates estimates that a significantly higher percentage of interchanges would be deemed deficient for the current crop of "industry standard" 53-foot long semi-trailers, probably in excess of 60 percent.

[16] 1994 LCV Report, p. 2.

[17] Id., p. 18.

for rural interstates and $1.1 billion for urban interstates.[18] These are costs that would have to be borne by the states as a direct result of expanded use of LCVs.[19] The use of even the "intermediate" capacity rating to project costs, that is, the rating that intervenes between the stringent inventory rating and the more generous operating rating, "shows that use of doubles and triples increases bridge replacement costs more than 50 percent; *use of inventory rating increases replacement costs by more than 400 percent.*[20]

I should point out here that other, federal considerations bear directly on whether one should use a more conservative rating to gauge bridge and pavement replacement costs to ensure that capital investments in infrastructure last longer and are made with cheaper dollars at an earlier opportunity. FHWA recently put out a notice asking for comments on its preliminary policy on life-cycle costing. Aimed at correcting the mistakes of the past 20 years when the federal government was in the business of pouring money into short-lived, thin pavement overlays on both roads and bridges, this Federal Register entry emphasizes a cautious, conservative approach to designing long-term quality into our roads and bridges because "[t]otal life-cycle costs of specific facilities may be many times the initial construction costs when user costs are considered."[21] "It is essential that a long term perspective be taken in programming improvements, selecting among alternative maintenance, rehabilitation, and reconstruction strategies, and designing pavements, structures [i.e., bridges], and other highway elements."[22] In particular, the logic of life-cycle cost analysis

> may favor selection of improvements with higher initial costs in order to achieve significant long term savings in overall investment requirements. It may indicate, for instance, that more projects warrant reconstruction rather than rehabilitation strategies * * * or that somewhat higher designs or levels of service may be appropriate for some facilities. * * *
>
> Life-cycle cost analysis will help agencies to identify and explain the real costs borne by transportation users of inadequate transportation funding.[23]

Unfortunately, the investment logic of life-cycle cost analysis, including the reassessment of the contribution to road and bridge damage made by different classes of vehicles, forms no part of the GAO's 1994 LCV report. The penny- and pound-wise investment scenarios generated by life-cycle cost analysis dictate a hard look at using more conservative measures of infrastructure restoration costs, such as bridge capacity inventory ratings, to select project designs. FHWA, in particular, stresses the importance of these considerations in making project design and funding decisions for the NHS. It points out that:

> longer design lives should be considered for improvements on the NHS and other high volume urban roadways because future agency and user costs associated with maintenance and rehabilitation activities may be so high. For pavement improvements on the NHS, design lives of 50 years may be reasonable *while bridge and tunnel improvements may have design lives of 100 or more years.*[24]

Advocates does not believe that these kinds of fiscally responsible project decisions for bridge renovation can be made using capacity ratings more liberal than the inventory rating. But it is necessary to point out the downside to using more conservative, more durable project designs: they inevitably will be exploited by the trucking industry which right now, despite a $130 billion backlog of unmet bridge needs,[25]

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[18] Id., p. 5. GAO pointed out in its 1991 report on bridge infrastructure needs that "[w]hen bridge needs are assessed in terms of the cost per system to improve * * * the primary system would require the greatest investment level to improve its critically deficient bridges—$3.3 billion, or 40 percent of the proposed investment." See Bridge Infrastructure: Matching the Resources to the Need, GAO/RCED-91-167, July 1991, p. 19. Primary arterials are, of course, the majority surface mileage in the planned NHS.

[19] Id., p. 24.

[20] Id., p. 25 (emphasis supplied).

[21] 59 FR 35404, 35405.

[22] Id. at 35405.

[23] Id.

[24] Id. at 35406 (emphasis supplied).

[25] In his 1992 testimony, Transportation Infrastructure: Major Program Revisions Present Challenges (GAO/T-RCED-92-93, September 17, 1992), Kenneth Mead, Director of the Transportation Issues Resources, Community, and Economic Development Division of the GAO, asserted early in his statement that:

[O]ur basic surface transportation infrastructure is aging and in need of costly repairs. For instance, the Department of Transportation reported to the Congress in September 1991 that the funding backlog for bridges that are either structurally deficient or functionally obsolete totaled $91 billion in 1990. Furthermore, the cost of repairing or replacing these bridges could

claims that even present bridge designs on the Interstate system warrant higher truck weights. More responsible project design selection will almost certainly fuel more demands for even greater truck weights.

The GAO at points in its 1994 LCV report recognizes, however, that its bridge repair figures based on an "intermediate" capacity rating might be too parsimonious. For example, it points out that "[n]ationwide use of LCVs could generate additional costs to reconstruct bridges *because the gross weights of LCVs may exceed levels considered safe on some bridges.*"[26]

Moreover, all of these considerations on projected infrastructure costs pivot on the assumption that LCVs will not increase axle weights in excess of those already permitted under federal law. But the GAO recognizes that this may not be true. It points out in the 1994 LCV report that "Nevada * * * had observed that LCVs were averaging higher axle loads in the state than conventional tractor-trailers and, consequently, were assumed to be causing more pavement damage."[27] Triples are particularly prone to be a serious offender in axle weight violations since "[i]f heavily loaded, [they] could be more damaging than five-axle tractor-trailers because they use single axles rather than tandems under their shorter trailers."[28]

Other, recent GAO reports place in bold relief the problems of pavement damage resulting from extra-heavy big trucks, especially because of excessive axle weights. The GAO points out in its 1992 report on intermodal freight movement that:

> The increasing ton-miles of highway freight traffic have also generated concern about accelerated highway deterioration. On the basis of a truck weight survey on rural interstate highways, the Federal Highway Administration (FHWA) has estimated that *equivalent axle loadings increased more than 350 percent between 1970 and 1990.* An equivalent axle loading represents the damage caused by one pass of an axle bearing 18,000 pounds. This relative damage factor increases geometrically with increased weight on the axles, so that a heavy truck accounts for many more axle loadings than a passenger car. FHWA estimated that 91 percent of the equivalent axle loadings on rural interstate highways in 1990 were from tractor trailers with five or more axles.[29]

P. 4. Mr. Mead emphasized that this meant that "ISTEA's challenge is to sustain and improve the quality of our highways and bridges in the context of an aging surface transportation infrastructure, significant unmet needs, and limited resources." P. 6.

Similarly, in its 1991 report to Congress on transportation infrastructure needs, the GAO indicated that FHWA had shown that:

> over 40 percent of all Interstate pavement is rated in fair or poor condition. The outlook for future preservation is not encouraging because (1) DOT projects that Interstate conditions are not expected to improve even if 4R funding levels are substantially increased, (2) Interstate capacity enhancement needs will increasingly compete with preservation needs * * *[30]

Even maintaining 1989 conditions on the Interstate would require all levels of government to invest an average of $8.7 billion a year through the year 2009 and to improve conditions—eliminating capital backlogs and meeting accruing preservation and capacity needs—would require $15.8 billion a year.[31] The operation of heavy vehicles was identified by the GAO in this report as a primary cause of accelerated pavement destruction.[32]

Where will this money come from, Mr. Chairman? The prospects right now for adequate infrastructure funding, especially in light of the call from FHWA to consider long-range, more expensive and durable highway and bridge designs, is very poor. Current authorizations and appropriations cannot address pending needs much less advance project designs for roads and bridges to more sophisticated levels

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increase to as much as $131 billion, depending on the number of years required to reduce the backlog.

[26] 1994 LCV Report, p. 22 (emphasis supplied).

[27] Id., p. 31.

[28] Id., p. 5.

[29] "Intermodal Freight Transportation: Combined Rail-Truck Service Offers Public Benefits, But Challenges Remain," op. cit., p. 9 (emphasis supplied).

[30] Transportation Infrastructure: Preserving the Nation's Investment in the Interstate Highway System, GAO/RCED-91-147, August 1991, p. 2.

[31] Id., p. 16.

[32] Id., p. 24. Even the safety of other road users is adversely affected by heavy vehicle pavement damage:

> Vehicle weight is the principal cause of "rutting", or grooves in the wheel path on asphalt pavement. This condition allows water to remain on the road surface, leaving pavement surfaces slick and motorists more susceptible to accidents. Federal legislation has permitted larger and heavier vehicles to travel on the Interstate Highway System.

of safety and durability. The GAO has even raised the alarm that funding shortfalls can become considerably worse in the near future, especially if the 1956 Byrd amendment is triggered because of highway trust fund revenue shortfalls.

> Revenues projected through fiscal year 1999 will fall $5.9 billion short of authorizations to be paid from the Highway Trust Fund's highway account during the ISTEA authorization period (fiscal years 1992 through 1997) * * * A shortfall in actual and anticipated revenues is expected to trigger the Byrd Amendment in fiscal year 1995 and to grow substantially during the remaining 2 years of the authorization period. Most of the projected shortfall is attributable to an anticipated decline in the collections of highway excise taxes.
>
> If current revenue projections prove accurate, the Byrd Amendment will require FHWA to reduce states' highway apportionments.[33]

According to the GAO, "excise tax revenues will not be sufficient to satisfy the Byrd test in fiscal years 1995, 1996, and 1997."[34]

Unfortunately, the looming problem of a surface transportation funding shortfall is made much worse by the fact of heavy trucks radically underpaying their fair share for the use—and rapid destruction—of our roads and bridges. In a letter to Congressman Norman Mineta, Chairman, House Public Works and Transportation Committee, in June 1994, the GAO emphasized that:

> fuel taxes, combined with other federal user fees * * * do not sufficiently correlate the charges that users pay with the damage that they charge. Highway wear increases exponentially with the weight of a vehicle's axle load, and past studies have suggested that heavy trucks may not be paying their fair share of highway costs. In 1982, for example, FHWA found that the largest trucks (over 75,000 pounds) paid only 50 cents for every dollar's worth of highway damage they cased, while the smallest trucks (under 26,000 pounds) paid $1.30 for every dollar's worth of highway damage they caused.[35]

In fact, following a three-year review, FHWA found that there were real inequities in the federal highway user fee system. The heaviest trucks were underpaying their fair share of taxes by about 50 percent, while passenger cars were overpaying by about 10 percent. These "heaviest trucks" were combination rigs between only 70,000 and 80,000 pounds.[36] No estimates have been made formally on the costs of pavement and bridge damage caused by much heavier trucks, although the suspicion is that the heaviest five-axle combinations and overweight-permitted LCVs may pay less than 20 percent of their cost responsibilities for pavement and bridge destruction. This is because "pavement repair costs rise more rapidly with a vehicle's weight than do fuel taxes."[37]

Yet the trucking industry has fought incessantly, and quite successfully, to prevent equitable charges for their damaging use of our nation's highways and bridges. "To improve equity, the Congress [in the 1982 STAA] mandated that the ceiling for the heavy vehicle use tax be increased from $240 a year to $ 1,900 a year by 1989."[38] This triggered a predictable response from the trucking industry which went on the offensive to scotch any increase of this magnitude. Against a backdrop of "studies" which claimed that all highway degradation was due to environmental weathering, not primarily from heavy truck axle loads, the ceiling for the heavy use tax was lowered in the 1984 Deficit Reduction Act from $1,900 to $550 a year.[39] This effectively undercut any effort finally to get heavy trucking to pay its fair share for infrastructure damage.

The GAO concludes in its highway user fee study that:

> federal efforts to make highway user fees more equitable through the heavy vehicle use tax, new vehicle excise tax, and heavy tire tax have been ineffective. * * * [T]he heavy vehicle use tax is relatively small and is capped at a low amount ($550) for trucks weighing over 75,000 pounds. As a result, it fails to charge for the additional wear caused by the heaviest trucks on the highways.[40]

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[33] Highway Trust Fund Strategies for Safeguarding Highway Financing, GAO/RCED 92 245, September 1992, p. 1.

The Byrd Amendment was enacted in 1956 as part of the legislation creating the Highway Trust Fund and was substantially modified in 1982. As revised, the Byrd Amendment requires that, in any given year, the highway account balance plus revenue collections anticipated through the next 12 years be sufficient to cover outstanding authorizations. Id., p. 3.

[34] Id., p. 4.

[35] Quoted in Highway User Fees: Updated Data Needed to Determine Whether All Users Pay Their Fair Share, GAO/RCED-94-181, June 1984, p. 1.

[36] Id., pp. 4–5.

[37] Id., p. 7.

[38] Id., p. 5.

[39] See, id.

[40] Id., p. 8.

All in all, Mr. Chairman, the GAO strikes a very cautionary stance on the safety and adverse infrastructure effects of expanded LCV operation, especially when its considerations are viewed against the backdrop of its other recent studies on infrastructure damage and funding, and highway cost responsibilities. The GAO is at pains to point out that "[e]ven if LCVs were allowed nationwide, their potential use would not have a large impact on overall trucking costs[,]"[41] so the cost efficiencies of changing to LCVs for either less-than-truckload or even long-haul freight movement are not easily seen.[42] Furthermore,

> Some [companies] pointed out that without a national network of highways open to turnpike doubles, it is not practical to realign operations in order to use doubles. They also noted that under pressure from customers, many companies are transitioning to 53-foot trailers. Even if the interstate system were open to turnpike doubles, the following questions would remain about their use
>
> • Would customers accept a return to 48-foot trailers?[43]

It is probable that the trucking industry will stress the desire of shippers to have goods received in 53-foot long trailers when an LCV is broken down or "staged" into its component trailers, and if this is the case, Mr. Chairman, can the turnpike double consisting of two 53-foot long units—a rig over 125 feet long—be far behind? We think the answer is obvious.

The GAO also emphasizes in concluding its 1994 LCV report that "it is questionable whether these long doubles would be a viable alternative to the current trends in the truckload industry, which involve using longer single trailers and intermodal rail service."[44] Last year, the U.S. Department of Transportation proposed a National Transportation System (NTS) initiative to ensure that the NHS doesn't prove to be another instance of single mode tunnel vision in planning for freight movement in the twenty-first century. Secretary Pen a emphasized how the NTS would view the NHS as a constituent part of a unified transportation network which has a balanced multi-modal perspective on moving people and freight. It may be, Mr. Chairman, that a "road train" like the turnpike double is really a Brontosaurus ready to slide into a tar pit for preservation as a historical curiosity that refused to evolve with a change in the transportation climate.

All of the considerations bearing on longer trucks that I've addressed in my testimony, Mr. Chairman, clearly show that the current LCV freeze is critical to controlling the safety and durability of our highways and bridges. But even further, these considerations also show that this freeze needs to be complemented by a nationwide limit on the length of trailers to prevent the inevitable growth of the "industry standard" semi-trailer beyond 53 feet. Without this cap at least on the NHS, if not on the 1982 STAA Designated National Network which put longer trailers on most arterial highways beyond the Interstate, the safety purposes and infrastructure preservation goals of the LCV freeze will be circumvented by further increases in trailer length.

When trailers grow longer, legal axle and gross weights are increasingly breached either by a surge in improper permits for nondivisible loads or by more trucks operating at illegal weights. When trailers grow longer, certain kinds of cargo that fill shorter trailers to capacity without exceeding weight laws become the occasion for routine violations of axle and weight limits. When trailers grow longer, the trucking industry demands that the design of our roads and bridges, of our ramps and interchanges, be strengthened and enlarged to fit the bigger rigs.

Mr. Chairman, our highway system cannot continue to have the demand placed on it by the trucking industry for impromptu increases in design and infrastructure funding just because there are ingenious ways to keep upping the ante on commercial vehicle size and weight. Congressional hearings over the past few years, recent GAO reports, and state fiscal projections all consistently report how our infrastructure funding is in serious arrears. State departments of transportation need reliable predictions not only of how much money they will have to maintain our previous investments, but what will be the size and weight of heavy commercial vehicles. A major reconstruction project takes years to plan, design, obtain potential right-of-ways additions, and meet new environmental and land-use requirements. We cannot keep asking our highway agencies to play catch-up with the demands of longer,

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[41] Id., p. 41.

[42] But reducing the number of long-haul LCV trips would materially improve truck safety. The GAO recognizes that diversion of highway freight traffic to other modes is an important contribution to highway safety gains. Its 1992 report on intermodal freight transport underscores this: "A reduction in transcontinental driving should benefit highway safety by improving drivers' morale and lessening fatigue." "Intermodal Freight Transportation: Combined Rail-Truck Service Offers Public Benefits, but Challenges Remain," op. cit., p. 44.

[43] Id., p. 37.

[44] Id., p. 45.

wider, heavier combination trucks when they are unable to make real gains on the enormous backlog of unmet needs.

The time has come to stop the never-ending spiral of alternate increases in the size and weight of heavy trucks by putting the lid on trailer lengths. We ask this Committee's support for such action, including your careful review of the merits of H.R. 4496.

Thank you again for this opportunity to testify. I'm ready to respond to any questions or requests for more information that the members of the Subcommittee might have.

Senator EXON. Kay, welcome to you. It is good to see a friendly Nebraska face here. We have worked together on safety issues for a long, long time. I appreciate very much the fact that you have taken time to come into Washington to testify on this very, very important matter. Please proceed at this time in any fashion you see fit.

STATEMENT OF KAY E. KONZ, NEBRASKA VOLUNTEER COORDINATOR, CITIZENS FOR RELIABLE AND SAFE HIGHWAYS (CRASH); ACCOMPANIED BY JOAN CLAYBROOK, COCHAIR OF CRASH, AND PRESIDENT, PUBLIC CITIZEN

Ms. KONZ. Thank you, Senator Exon for asking me to testify on behalf of the Nebraska CRASH coalition for the subcommittee in reference to the national highway system.

I am accompanied today by Joan Claybrook, who is the national cochair of CRASH, Citizens for Reliable and Safe Highways.

Again, my name is Kay Konz. And I am a licensed professional counselor at Catholic Social Services in Lincoln, NE. I am also a certified school psychologist in the State of Nebraska. I am pleased to serve as the volunteer coordinator in Nebraska for CRASH.

My commitment to highway safety is deeply personal. In 1983, I was seriously injured in a motor vehicle crash. I was unable to work for several years as a result of those injuries.

My brother's son, also, was killed last year on my country's highways. My family and I cannot afford to lose anymore on our Nation's roads.

And even with that, Senator, I feel that I am at risk every time that I get on the interstate between Lincoln to Omaha to go to my parent's farm, because that stretch of road is so heavily trafficked with cars and with trucks that I feel like I am in danger.

Mr. Chairman, every day 3 children die and 260 children are injured in traffic crashes. Motor vehicle crashes are killing more of our children and youth than any other single cause.

If a disease were killing our children at the rate that they die on the highways, every parent in every district would be demanding our Government invest every possible resource into finding a cure.

That disease, Mr. Chairman, is embedded in our current highway system that allows ever larger trucks on our roads. The trucks represent only 12 percent of the traffic on interstate highways.

They are involved in 38 percent of motorist fatalities in crashes involving more than one vehicle. In 1992, more than 4,400 people were killed in truck-related crashes.

I am here today to ask the Senate to stop the racheting upward of truck size and weight. I urge the committee to cap trailer length at 53 feet on the National Highway System, exempting longer trail-

ers only if they are currently in use and operate in States where they are already authorized.

The American Association for State Highway and Transportation Officials recommended 30 years ago that semitrailers be limited to 48 feet.

But with no national limit in place, State after State moved to allow 53-foot trailers. As you pointed out, when some States have allowed longer vehicles, other States acquiesced in order to stay competitive.

Today, 53-foot trailers are used in every State but Rhode Island. And now, 57-, 59-, even 60-foot trailers are legal in some States.

CRASH is also urging the Senate to freeze truck rates on the National Highway System and to repeal the Symms amendment, which would return authority to the U.S. Department of Transportation to review State claims of grandfather rights on the Interstate Highway System.

We believe that the length and weight of trucks should be frozen since any increase in one is virtually always followed by pressure to raise the other.

If length limits are raised, factions within the trucking industry push for higher weight limits to accommodate the added trailer capacity. And weight increases lead to demands for greater length to accommodate the additional weight.

Senator, it is the legendary snake biting its own tail in regard to length and weight issues.

The National Highway System will add 110,000 miles to the network of federally funded roads built and maintained with gas tax dollars.

As Federal Highway Administrator Rodney Slater recently pointed out, the heavier the trucks, the more damage to our already deteriorated road system. In one trip, a typical 18-wheeler causes as much road damage as thousands of cars.

Unless the Senate acts to control maximum truck weights, billions of dollars of highway and bridge investments will be prematurely destroyed.

A truck length and weight freeze on the NHS has been endorsed by the American Automobile Association, the American Public Health Association, the Consumer Coalition for Health and Safety, the Friends of the Earth, the General Federation of Women's Clubs, the Nevada Department of Transportation, the Sierra Club, the United Transportation Union, the Owner-Operator-Independent Drivers Association, and dozens of other consumer, safety, medical, labor, and environmental groups.

Mr. Chairman, next to me is a photo of a double 59-foot tractor trailer, the exact kind of truck that the State of Oklahoma recently attempted to get approval to run on its roads.

The full length of this giant rig extends to 135 feet. Can you imagine trying to pass this on the highway, on the interstate between Omaha and Lincoln?

Just to put it in perspective, the standard midsize four-door car today, such as a 1994 Honda Accord, is 15.33 feet in length. The giant truck is nine times the length of the average family passenger car.

The question is: At what point will we say, "Enough"?

We believe the time is now for the sake of protecting the motoring public and preserving our infrastructure, to freeze truck weight at 80,000 pounds and cap truck lengths at 53 feet.

Senator, there is a story I was told recently about Mother Theresa who attended a conference on hunger. And as she arrived, there was a man who was dying of starvation sitting on the steps as people were stepping over him to go into the conference building.

While I recognize the need to study this issue and to collect good and sound data, I also feel that while we are waiting to do that, we are driving over dead bodies just as those people to that conference were stepping over dead bodies to talk about hunger.

I am asking this committee to help stop the destruction of our Nation's highways by limiting longer and heavier trucks on the National Highway System. These highway trains are more dangerous and more damaging to our roads.

Please protect the safety of Nebraska motorists for my family, my friends, my colleagues, my students, and my clients.

Thank you for hearing my concerns.

Senator EXON. Kay, thank you very much for your excellent testimony.

[The prepared statement of Ms. Konz follows:]

PREPARED STATEMENT OF KAY KONZ

Thank you, Senator Exon, for asking me to testify before this subcommittee in reference to the National Highway System (NHS).

My name is Kay Konz, and I am a licensed professional counselor and certified school psychologist in the State of Nebraska. I am also pleased to serve as the Volunteer Coordinator in Nebraska for CRASH, Citizens for Reliable and Safe Highways.

My interest in highway safety is deeply personal. In 1983, I was seriously injured in a motor vehicle crash and was unable to work for several years as a result of those injuries. My brother's son was also killed last year on our country's highways. My family and I cannot afford to lose any more on our highways and freeways.

Mr. Chairman, every day three children die and 260 children are injured in traffic crashes. Motor vehicle crashes are killing more of our children and youth than any other single cause. If a disease were killing our children at the rate they perish on our highways, every parent in every district would be demanding that our government invest every possible resource into finding a cure for a deadly illness.

That illness, Mr. Chairman, is embedded in our current highway system that allows ever-larger trucks on our roads. Though trucks represent only 12 percent of the traffic on Interstate Highways, they are involved in 38 percent of motorist fatalities in crashes involving more than one vehicle. In 1992, more than 4,400 people were killed in truck related crashes.

I am here today to ask the Senate to stop the racheting upward of truck size and weight. I urge the Committee to cap trailer length at 53 feet on the National Highway System, exempting longer trailers only if they are currently in use and operate in states where they are already authorized.

The American Association for State Highway and Transportation Officials recommended years ago that semi-trailers be limited to 48 feet. But with no national limit in place, state after state moved to allow 53 foot trailers. Once some states had the longer trailers, others felt they had to go along in order to stay competitive, and today 53 foot trailers are used in every state but Rhode Island. Now 57, 59 and even 60 foot trailers are legal in some states; federal action is needed to prevent them from spreading all over the country.

CRASH is also urging the Senate to freeze truck weights on the NHS, and to repeal the Symms Amendment, which would return authority to the US Department of Transportation to review state claims of grandfather rights on the Interstate Highway System. We feel both the length and weight of trucks need to be frozen, since any increase in one is virtually always followed by pressure to raise the other. If length limits are raised, parts of trucking industry will push for higher weight

limits to accommodate the added trailer capacity; and weight increases lead to demands for greater length to accommodate the additional weight.

The National Highway System will add 110,000 miles to the network of federally funded roads, built and maintained with gas tax dollars. As Federal Highway Administrator Rodney Slater recently pointed out, "the heavier the trucks, the more damage to our already deteriorated road system." In one trip a typical 18-wheeler causes as much road damage as thousands of cars. Unless the Senate acts to control maximum truck weights, billions of dollars of highway and bridge investments will be prematurely destroyed.

A truck length and weight freeze on the NHS has been endorsed by the American Automobile Association, the American Public Health Association, the Consumer Coalition for Health and Safety, the Friends of the Earth, the General Federation of Women's Clubs, the Nevada Department of Transportation, the Sierra Club, the United Transportation Union, the Owner-Operator Independent Drivers Association, and dozens of other consumer, safety, medical, labor, and environmental groups.

Along with my statement today, I am submitting a copy of CRASH's testimony to the House of Representatives on the need for congressional action to freeze truck size and weight on the National Highway System.

I am asking this committee to help stop the carnage on our nation's highways by limiting longer and heavier trucks on the National Highway System. These highway trains are more dangerous and more damaging to our roads. Please protect the safety of American motorists, for my family, my friends, my colleagues, and my clients, and thank you for hearing my concerns.

PREPARED STATEMENT OF JOAN CLAYBROOK, COCHAIR, CITIZENS FOR RELIABLE AND SAFE HIGHWAYS (CRASH) AND PRESIDENT, PUBLIC CITIZEN

Thank you, Mr. Chairman. I am testifying today as President of Public Citizen and Co-Chair of Citizens for Reliable and Safe Highways (CRASH). CRASH is a nonprofit citizens organization dedicated to highway safety. CRASH has over 30,000 activists nationwide. Our 17-member Board of Directors includes Robert Vagley, President of the American Insurance Association; John S. Hassell, former Administrator of the Federal Highway Administration; and James Arena, Chair of the National Association of Governor's Highway Safety Representatives.

Since its formation in 1990, CRASH has actively promoted a wide range of highway safety initiatives. Those initiatives related to issues such as truck driver fatigue, truck maintenance standards, the adequacy of truck underride guards, the freeze on Longer Combination Vehicles (LCVs) and ensuring that U.S. truck safety standards are not lowered as a result of the North American Free Trade Agreement.

Today we are here to testify in support of H.R. 4496, "The Safe Highways and Infrastructure Preservation Act of 1994," introduced by Representative James Oberstar. Mr. Oberstar's bill will save lives and reduce injuries and property damage by stopping the otherwise never-ending ratcheting upward of truck sizes and weights.

Moreover, without the Oberstar bill, Congress will spend billions of taxpayer dollars to upgrade National Highway System ("NHS") highways and bridges and then allow heavy trucks to destroy that system. Federal Highway Administrator Rodney Slater is as concerned about this as we are. As he recently noted: "The heavier the trucks, the more damage to our already deteriorated road system."

Specifically, H.R. 4496 will:

1. *Cap trailer lengths.* Will freeze the length of trailers used on the NHS at 53 feet. Existing trailers longer than 53 feet legally in use may continue to operate on the NHS in those states where they are already authorized.

2. *Freeze current weight limits.* All trucks in excess of 80,000 pounds (and trucks in excess of axle weight and bridge formula limits) can continue to operate on the NHS, but only on those highways and under the same conditions as now allowed. This provision would not require any trucking company or shipper to change any currently legal operations. It is not a roll-back. However, no new overweight rights could be claimed on the NHS.

3. *Repeal the Symms Amendment.* Mr. Oberstar's bill will return the authority to the U.S. Department of Transportation to review state claims of grandfather rights.

Others supporting a length and weight cap include the American Automobile Association which represents 35 million American motorists, the Owner Operator Independent Drivers Association which represents the nation's independent truck drivers, the Consumer Federation of America, the American Public Health Association, West Virginia United Mine Workers, the Sierra Club and the 38 other organizations set forth in the list attached to my testimony. Many of these organizations had hoped to be here personally to testify today as well. But in recognition of the Com-

mittee's time constraints, some will submit statements for the record. They want the Committee to realize that while this may not be an "inside the beltway" issue, it is an enormously important to citizens all over the country.

Last month this Committee reported a bill the NHS on which billions of dollars will be spent. We believe the Committee should follow that action with steps to protect the safety of the motoring public using these highways and the investment of its tax dollars.

Mr. Chairman, there are four reasons why we think Congress should freeze truck weights and length.

First, over the past 50 years there has been a dangerous pattern of ever increasing truck lengths and weights. A part of the trucking industry has, over the years, successfully exploited the ambiguities in federal weight laws. It has applied pressure on the states to obtain approval for heavier and longer trucks on state highways that are not permitted on federal Interstates. And that part of the trucking industry is never satisfied. In virtually every instance in which it has succeeded in obtaining higher length limits, it has followed with pressure to raise the weight limits to accommodate the added trailer capacity. Likewise, the weight increases are invariably followed by demands for greater length to accommodate the additional weight.

Second, heavy trucks cause huge amounts of pavement and bridge damage today. We already have an existing backlog of highway and bridge deficiencies estimated at $212 billion. Without the Oberstar bill, Congress will spend billions of taxpayer dollars to upgrade NHS highways and then allow heavier trucks to destroy that system.

Third, studies conclusively show that the heavier the gross weight of a truck, the greater the likelihood of a crash.

Fourth, longer trucks are more dangerous trucks.

TRUCKS CONTINUOUSLY GET LONGER AND HEAVIER

Over the past 50 years, there has been a dangerous pattern of ever-increasing truck weights and lengths. The chart below shows the continuous growth in the length of trucks.[1]

Similarly, trucks have become progressively heavier.[2]

In sharp contrast, automobiles have been getting smaller and lighter since the 1970's.

Mr. Chairman, there is an immediate need to draw the line on further truck length and weight increases.

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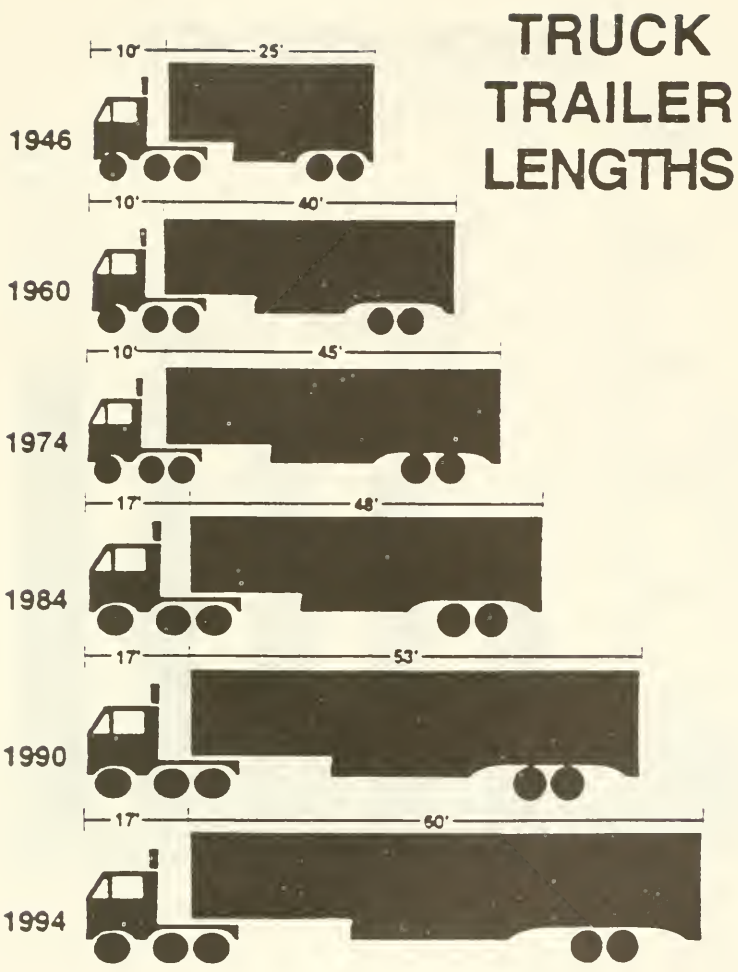
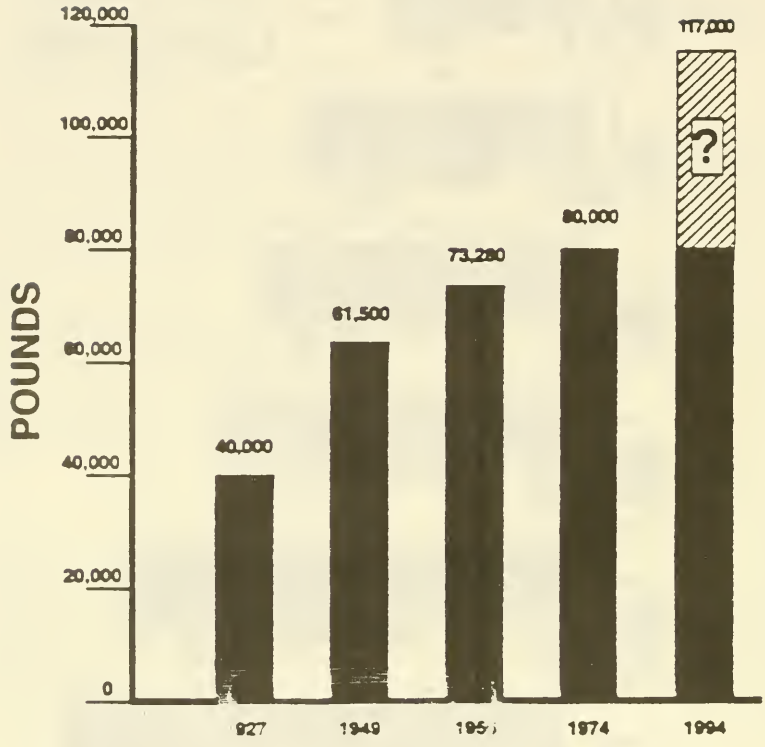
[1] 1990: All but a handful of northeastern and mid-Atlantic states had approved 53 foot trailers by 1990. In 1994, all states except Rhode Island allow 53 foot trailers. 1994: As of June, 1993, 11 states allowed trailers 57 feet or longer. Texas, Oklahoma, and Kansas allow trailers that are 59.6 feet long. Wyoming allows trailers 60 feet long. In 1987 the American Association of State Highway and Transportation Officials (AASHTO) adopted a policy calling for a national semitrailer length of no more than 48 feet in order to be compatible with existing highway design and safety needs. "Guide for Maximum Dimensions and Weights of Motor Vehicles and for the Operation of Nondivisible Load Oversize and Overweight Vehicles," AASHTO, April, 1987.

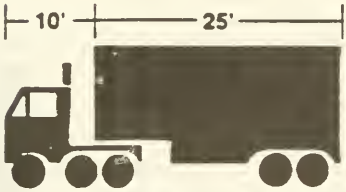
[2] Source for all years before 1994: Transportation Research Board, Twin Trailer Trucks, Special Report 211, p. 30. Source for 1994: Although there is now an 80,000 federal cap, because of the grandfather clause, many states issue special permits to exceed 80,000 pounds. The Federal Highway Administration does not know the number of special permits nor the number of overweight trips run under such permits. A Report to Congress from the Secretary of Transportation "Overweight Vehicles—Penalties & Permits, US Department of Transportation, April, 1993, p. iv. The maximum truck weight carried pursuant to special permits in Wyoming is 117,000 pounds. Summary of Size and Weight Limits, American Trucking Associations, 1993.


TRUCK
TRAILER
LENGTHS
1946
10'
25'
1960
10'
40'
1974
10'
45'
1984
17'
48'
1990
17'
53'
1994
17'
60'

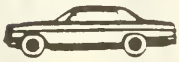
TRUCK WEIGHTS



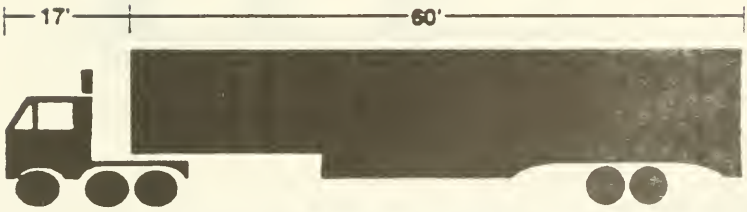
COMPARISON OF TRUCK—AUTO LENGTHS



1946 TRACTOR WITH 25' TRAILER

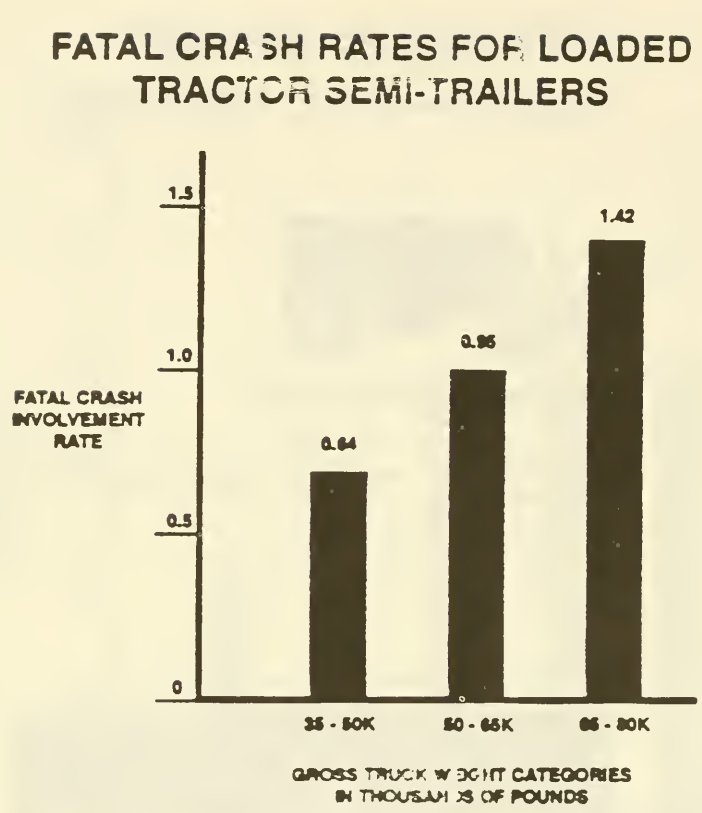


1946 BUICK LENGTH = 17.85 FT.



1994 TRACTOR WITH 60' TRAILER

1994 BUICK LENGTH = 15.3 FT.



HEAVIER TRUCKS ARE MORE DANGEROUS TRUCKS

Truck crash rate studies conclusively show that heavier trucks are more dangerous trucks. The graph below depicts the sharp increase in fatal truck crash rates as trucks get heavier.[3]

This graph is based on a study of fatal truck crash involvement rates performed by the University of Michigan Transportation Research Institute (UMTRI) in 1988. The UMTRI study shows that if an 80,000 pound truck is operating on the same highways and under the same conditions as a 65,000 pound truck, the heavier truck is 47 percent more likely than the lighter truck to be involved in a crash because of the additional weight.

The American Trucking Association (ATA) would have you believe that the gross weight of a truck bears no relationship to the likelihood of a crash. In fact, they would have you believe that the heaviest trucks are the very safest.

In support of this, the ATA cites UMTRI data showing lower crash rates for the heaviest trucks.[4] The ATA would hope that your analysis would end at that point. However, UMTRI concluded that stopping at that point—and not taking into account the types of roads on which heavy and light trucks travel—misrepresents the influence of gross weight in causing fatal truck crashes.

UMTRI concluded that in order to provide a comparison of fatal crash involvement rates of trucks with differing gross vehicle weights, one must control for the influence the different highways travel led and the time of day during which the travel takes place.

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[3] K.L. Campbell et al., "Analysis of Accident Rates of Heavy-Duty Vehicles", University of Michigan Transportation Research Institute, Report No. UMTRI-88-17, Ann Arbor, April, 1988, p. 65.

[4] March 25,1994 letter from Western Highway Institute to the Honorable Nick Joe Rahall, p. 3. The Western Highway Institute was acquired by the American Trucking Associations in October, 1993.

Heavier trucks—typically used in long haul over the road operations—travel much more on the safer limited access, divided highways, and on the safer rural highways and at night when there is less congestion on the highway. Lightly loaded trucks—such as used in pickup and delivery service—travel more often on the more dangerous urban roads, on the more dangerous two way, two lane roads and during the more congested daylight time periods.

UMTRI stated that it is "essential" to control for these factors.[5] When UMTRI controlled for these factors, it found (as shown in the graph on a previous page of this testimony that the heaviest trucks were significantly overinvolved in crashes.

There a number of factors which make heavier trucks more dangerous. These are explained in detail in the CRASH white paper I have attached to my testimony. Let me briefly summarize those reasons now.

First of all, heavier truck weights substantially increase the truck rollover rate.[6] Researchers at the University of Michigan's Transportation Research Institute have concluded that the 1974 federal law which increased the maximum truck weight from 73,280 pounds to 80,000 pounds resulted in a 44 percent increase in the rollover rate of fully loaded trucks.[7] Mr. Chairman, I think this is particularly significant. An increase of less than 7,000 pounds increased the rollover rate by 44 percent. More recent research shows that increasing gross weight from 80,000 to 88,000 pounds will again increase the rate of rollovers.

Second, heavier trucks are also more likely to be involved in "runaway" crashes[8] caused by brake failures on steep downhill grades. Interviews with truck drivers with mountain driving experience show. that one out of every four drivers has lost his brakes at least once during his driving career.[9]

Third: More weight means that for many trucks it will take longer for the truck to come to a stop after the brakes are applied.[10] The rates of fatal crashes in which tractor-semitrailers crashed into the rear ends of other vehicles are consistently higher for more heavily loaded trucks than for more lightly loaded trucks.[11]

Fourth: Trucks designed to carry heavier loads have more jackknife crashes when travelling empty than do trucks designed for lighter loads.[12]

Fifth: Heavier trucks are incompatible with other traffic. Heavier trucks travel more slowly on upgrades. These slower speeds are dangerous. Among other hazards that are created, these slow upgrade speeds on two-lane, two-way highways cause a much higher percentage of illegal passing maneuvers by trailing passenger cars.[13] One study showed that trucks which travel 15 mph below the

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[5] Campbell et al., supra note 3, p. 67: "To carry out the analysis, it is essential to have both accident data and travel data that can be cross-classified by the factors of interest, especially those categorizing the type of travel. It is not sufficient to simply know the total miles travelled. One must also be able to classify the travel by factors related to the accident risk, such as the type of road and the time of day."

[6] R.D. Ervin et al., "Influence of Size and Weight Variables on the Stability and Control Properties of Heavy Trucks," Final Report, Vol. I, University of Michigan Transportation Research Institute, March, 1983, pp. 82-84.

[7] R.D. Ervin et al., supra note 6, p. 84.

[8] P.S. Fancher et al., "Retarders for Heavy Vehicles: Evaluation of Performance Characteristics and In-service Costs," Phase I, Technical Report, Highway Safety Research Institute, The University of Michigan, February, 1981, pp. 90-91.

[9] P.S. Fancher et al., supra note 8, p. 75.

[10] R.D. Ervin et al., supra note 6, at pp. 55-56, determined that for out of adjustment brakes, the increase in stopping distance is directly proportional to increases in weight. Federal Highway Administration, Office of Motor Carriers, Accomplishments and Effectiveness, Annual 1992 Report, Attachment 111, p. 7 reports that more than 50 percent of all out of service violations result from out of adjustment brakes. About 30 percent of all truck inspections result in out of service orders. Congress of the United States, Office of Technology Assessment, Gearing Up for Safety, Summary, 100th Congress, p. 5.

[11] P.S. Fancher et al., "Turner Truck Handling and Stability Properties Affecting Safety," Final Report, Vol. I, University of Michigan Transportation Research Institute, 1989, p. 122.

[12] Transportation Research Board, Truck Weight Limits, Special Report 225, 1990, p. 111. Note that loaded trucks seldom jackknife. Jackknife is usually initiated by premature lockup of the drive axles of tractors hauling empty trailers. P.S. Fancher et al., "Vehicle Design Implications of the Turner Proposal," University of Michigan Transportation Research Institute, September 14, 1989, text accompanying Figure 8. Heavier trucks require more torque capacity than do lighter trucks. When the torque level applied to tires becomes too great, given the load on those tire, lockup and loss of control occurs. R. D. Ervin et al., supra note 6, p. 52.

[13] Gerald Donaldson, Ph.D., "Large Truck Safety and the Geometric Design of Two-Lane, Two-Way Roads," ITE Journal, vol. 55, No. 9, September 1985, pp. 41-46, citing Wolton and Gericke. See Note 17.

prevailing speed of other vehicles have crash involvement rates nine times higher than those that travel at the same speed as other traffic.[14]

Also, because of their length and slow acceleration rates, longer and heavier trucks take more time and distance to merge into freeway traffic from an onramp than do smaller and lighter trucks. Acceleration lanes—that is, merge lanes which allow vehicles coming from onramps to build up enough speed to easily merge with other vehicles—are designed primarily for cars and, according to the Transportation Research Board, are already too short for even 80,000 pound trucks.[15]

Mr. Chairman, there is no question that heavier trucks cause more crashes, more death and injury, or more damage to our highways and bridges. It is therefore essential that the current federal 80,000 pound limit gross vehicle weight limit (including the current requirements of 23 U.S.C. section 127) which now applies only to Interstates be extended to the entire National Highway System. H.R. 4496 would extend these requirements to the NHS.

OVERLENGTH TRUCKS ARE MORE DANGEROUS TRUCKS

There are a number of reasons why over length trucks are more dangerous. Already the current situation threatens to get out of hand. For example, in the state of Oklahoma, a new rule has been proposed by the state DOT to increase the maximum allowable length of double trailer trucks to 59 feet 6 inches for each trailer. This is a vehicle nearly 150 feet in length, one-half the length of a football field. These vehicles are nothing less than "highway trains".

There are a number of concerns about truck length.

Offtracking and Swingout Lane-Encroachment

One of the major hazards of overlength trucks results from a tradeoff which must be made by truck drivers between the dangers of "offtracking" and "swingout lane-encroachment". Let me describe these two dangers.[16]

"Offtracking" means that the rear wheels of a trailer do not follow the front wheels of the tractor when making a turn. In order to make a 90 degree intersection turn and minimize the encroachment by the trailer into the oncoming lanes of traffic, a driver of an overlength trailer must, as shown below, allow the trailer to leave the roadway, roll over any curb and plow through whatever stands in its path—from roadway signs to other objects. This may unintentionally include a pedestrian or a bicyclist.

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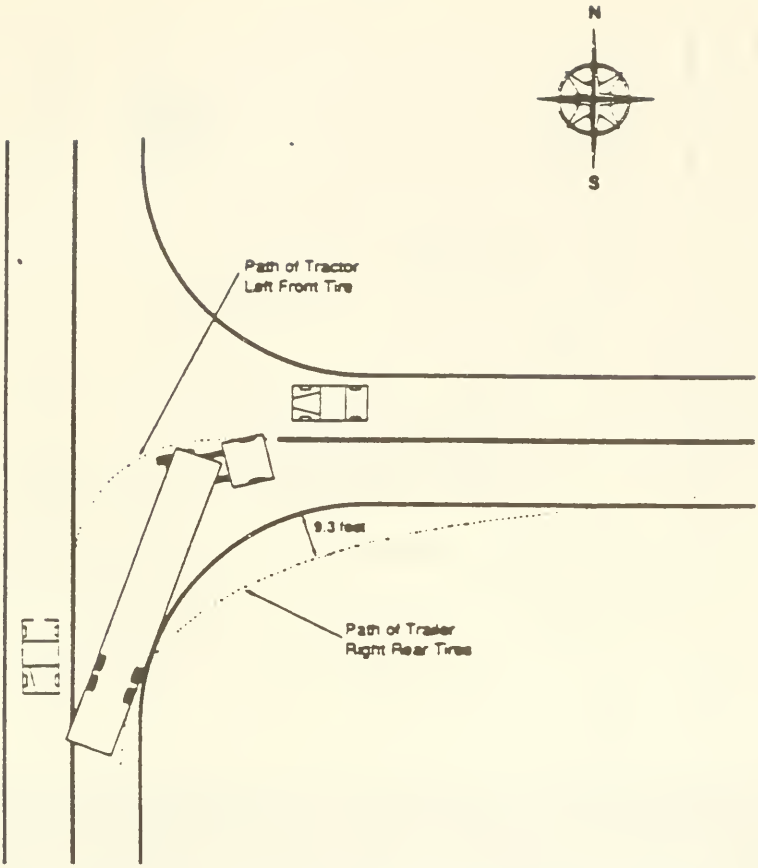
[14] C.M. Walton and O. Gericke, "An Assessment of Changes in Truck Dimensions on highway Geometric Design Principles and Practices," The University of Texas Center for Transportation Research, Austin, 1981.

[15] Transportation Research Board, Truck Weight Limits, Special Report 225, 1990, p. 119.

[16] Diagrams on pp. 11-13 are based upon the CRASH computer simulations based upon the mathematics and geometrics set forth in the following two studies:

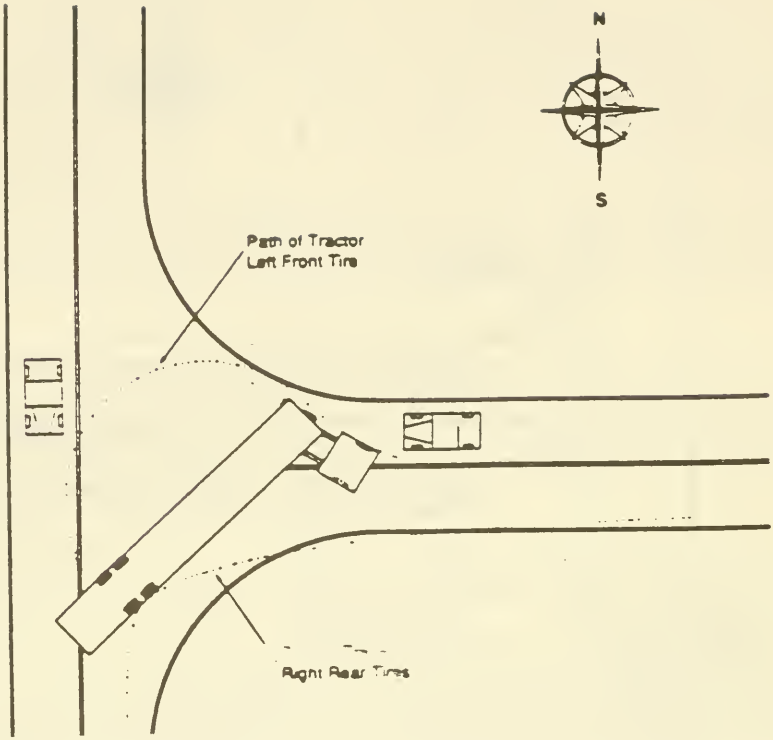
"Vehicle Offtracking Models", Michael W. Sayers (UMTRI); in Symposium on Geometric Design for Large Trucks, Transportation Research Record 1052; 1986

"Swept Paths of Large Trucks in Right Turns of Small Radius"; J.R. Billing and W.R.J. Mercer (Ontario Ministry of Transportation); in Symposium on Geometric Design for Large Trucks; Transportation Research Record 1052; 1986.



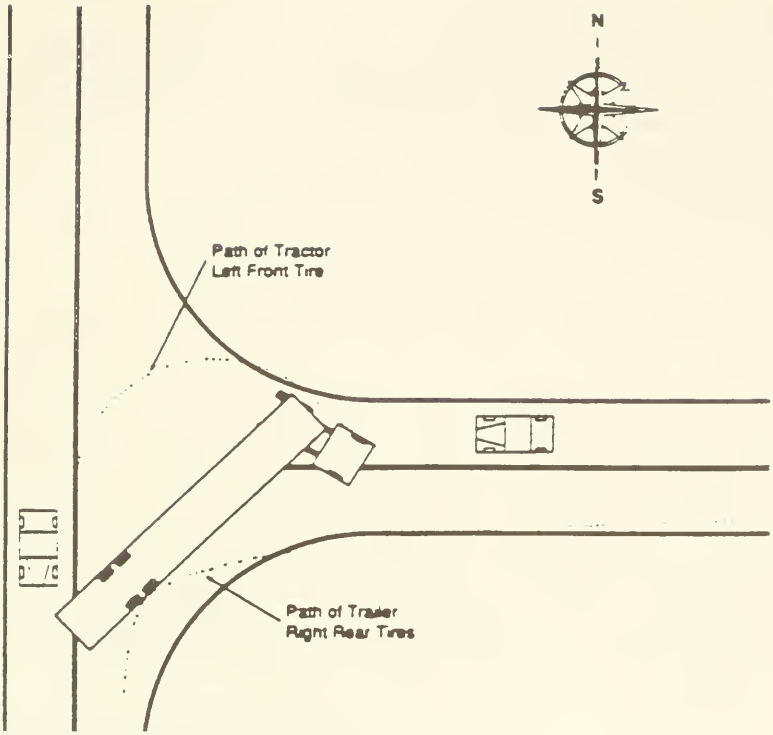
Mr. Chairman, note that the path of the right rear trailer tires are more than 9 feet off the pavement. Note also that the rear of the trailer encroaches two feet into the lane of oncoming traffic. In 1983, a survey of the states of AASHTO showed that only about half of existing Interstate ramps could accommodate the offtracking of a combination truck with a 48-foot long semitrailer.

If the driver tries to prevent the trailer from leaving the road, he must encroach to a much greater degree into oncoming lanes of traffic in one of the two ways shown below.



You will note that the driver first had to swing his tractor to the left two feet in the lane of oncoming southbound traffic before beginning his right turn into the lane of westbound oncoming traffic. This maneuver causes the trailer to "swing-out" five feet—almost to the middle of the oncoming lane of traffic. The rear end trailer swing-out is extremely hazardous for oncoming traffic since it is totally unexpected and the truck driver himself will frequently not realize that the swing-out is going to occur. He will, therefore, not plan for it.

Note also, that the right rear tires of the trailer still leave the roadway. The driver's only other choice is as shown below:



Here the driver avoided moving the tractor into the southbound oncoming lanes of traffic, but both the tractor and the trailer encroached into oncoming lanes of traffic on the road onto which they were turning. The trailer also encroaches 3½ feet into the southbound oncoming lanes of traffic. The left front wheels of the tractor goes over the curb and leaves the pavement on the left and the right rear tires of the trailer go over the curb and leave the pavement on the right.

Here the tractor and the trailer encroached into oncoming traffic lanes on the road onto which they were turning.

Severity

Crashes with these overlength trailers are more likely to be severe. In a jackknife accident, for example, the extra length of the trailer means the over length trailer is more likely to be thrown into adjacent lanes of traffic and to hit other vehicles.

Lane Changes and Merging

Drivers of overlength trucks find it more difficult to merge into freeway traffic from an onramp. They frequently have to slow or stop to find a gap in traffic which is large enough to allow them to move into. This results in traffic backup and disruption at the interchange. It also creates the potential for following motorists to hit the rear end of over length trucks which suddenly slow or stop. Moreover, slowing or stopping the truck effectively shortens the length of the acceleration lane provided for merging. These lanes are almost always of substandard length even for trucks attempting mergers at reasonable speeds.

Overlength trucks have the same problem changing lanes.

Heavier Trucks Destroy Our Roads and Bridges

Large trucks are already beating our road pavements and bridges to pieces. Our existing total backlog of highway and bridge deficiencies is estimated by the federal government as $212 billion. The U.S. Department of Transportation in its last report to Congress says that it would take $60 billion a year just to improve our roads

and bridges above minimum acceptable standards.[17] More than 115,000 federally-assisted bridges in the U.S. are rated as structurally deficient.[18]

If we do not cap the size and weight of trucks we will be spending billions of dollars to create the NHS and then allow even heavier trucks to destroy that system. The American Association of State Highway and Transportation Officials ("AASHTO") showed many years ago in its road test (the "Road Test") that one 80,000 pound 5-axle tractor-semitrailer will do as much damage to the pavement as 9,600 automobiles.[19]

The ATA has questioned the reliability of the AASHTO 9,600 to 1 ratio of truck to car pavement damage by asserting that the AASHTO figure has no relationship to actual pavement wear and is outdated.[20] The ATA is wrong that the AASHTO Road Test has no relationship to actual pavement wear. In fact, the AASHTO Road Test involved continual driving on test roads until the roads wore out.

The ATA is correct that the AASHTO Road Test completed in the early 1960s is old and should be updated. The 9,600 to 1 ratio was based on the relative damage caused by a heavy truck and a 4,000 pound car, about the weight of a minivan carrying five passengers and a weekend's worth of luggage. Since most cars today carry on average 1.3 passengers and weigh about 3,000 pounds, a more accurate average car weight for today would be 3,200 pounds. Using the updated car weight the AASHTO ratio for truck to car pavement damage would be closer to 19,000 to 1.

Even the ATA's own report suggests a methodology which results in a truck-to-car pavement damage ratio of 5,600 to 1.[21] Frankly, Mr. Chairman, it is less important whether the damage ratio is 19,000, 9,600 or 5,600 to 1. The fact is, no matter which of the three ratios is right, heavy trucks cause an enormous amount of damage to public highways, and our government policies should be designed to put an end to the constant escalation of truck weights.

And the rate at which paved surfaces deteriorate increases exponentially in relation to the weight of the vehicle running over it. This means, for example, that a 20 percent increase in the current weight limit will cause 75 percent more pavement wear.[22] Should we expect the public to pick up the cost of the additional highway damage from heavy trucks? According to the Federal Highway Administration, the amount paid by trucking companies in taxes is at most only 60 percent of the cost of the damage that they cause to our highways and bridges.

ATA claims that there is no need for a gross vehicle weight cap of any level and urges Congress to "free the private sector and state governments from federal limitations on gross vehicle weight caps and the LCV freeze."[23] CRASH strongly disagrees.

The gross vehicle weight cap is essential. As we have already shown, the heavier the gross weight of a truck, the greater the likelihood of a fatal crash. Moreover, both pavement and bridge damage worsen with increasing gross vehicle weights with the same vehicle configuration. Existing gross vehicle weight limits are a compromise that allow some level of bridge and pavement damage, and raising these limits would increase the damage.

With respect to bridge damage, FHWA has concluded that the current bridge formula without a gross weight cap would allow the operation of trucks so heavy that they could cause severe structural damage to bridges on the Interstate system:

> Within the range of configurations normally operated by carriers, the Bridge Formula effectively prevents overstress on Interstate System bridges. If combinations were operated with many more axles than are commonly used, however, allowable vehicle weights derived from the Bridge Formula could be high enough to severely damage Interstate bridges. Presently, the Gross Vehicle Weight limit of 80,000 pounds on the Interstate System creates little incentive

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[17] U.S. DOT, "The Status of the Nation's Highways, Bridges and Transit: Conditions and Performance," 1993.

[18] Id.

[19] "AASHO Road test," Highway Research Board Special Report 61, National Academy of Sciences, 1962.

[20] March 25, 1994 Western Highway Institute letter, supra, note 4, pp. 4-5.

[21] P.E. Irick, S.B. Seeds, and M.A. Diaz, ARE Inc., Engineering Consultants, "Characteristics of Load Equivalence Relationships Associated with Pavement Distress and Performance Phase II Study," Executive Summary, December 1991, prepared for the Trucking Research Institute, ATA Foundation, Inc. The 5,600 to 1 ratio was derived from Equation 3 on page 6 and Table 3 on page 12. CRASH used values from Table 3 corresponding to the parameters used to define AASHTO's 9,600 to 1 ratio: SN=4.36, terminal PSI=2.5. All ratios are based on load equivalence factors for flexible pavements which comprise about 60 percent of Interstate and principal arterial mileage.

[22] Transportation Research Board, Truck Weight Limits, Special Report 225, 1990, p. 141.

[23] Western Highway Institute Letter, supra, note 4, p. 6.

for carriers to add axles to existing combinations, but without a Gross Vehicle Weight limit there would be such an incentive because the greater the number of axles, the greater the permissible Gross Vehicle Weight. For instance, a Turnpike Double with 25 axles could have a Gross Vehicle Weight of 227,500 pounds, and a Triple could weigh 205,000 pounds.[24]

Obviously, if Interstate bridges are at such great risk then bridges on the remainder of the NHS would be at risk of even greater structural damage.

As far as LCVs are concerned, we are not surprised by this most recent statement of the ATA's real agenda. Their call for a "thaw" of the LCV freeze merely confirms the ATA's overall plan to place the heaviest and longest trucks on our highways without regard to the dangers they present to everyday motorists or to the damage they cause to our highways and bridges.

Close The Symms Amendment Loophole

These considerations show how our non-Interstate highways are at risk of major increases in truck crashes and pavement damage. But weight abuses and legal loopholes have combined to ensure that both safety and pavement suffer from big trucks on our Interstates as well.

These loopholes allow states, under pressure from part of the trucking industry, to exceed the federal 80,000 pound weight limit. The most important of these is the "Symms Amendment" to the grandfather provision of Title 23, section 127. In 1956 Congress passed legislation to build the Interstate highway system. At the same time, it passed a truck weight limit law on the Interstates to protect that huge investment from the pavement and bridge damage caused by heavy trucks. Since some states, however, already had state laws with higher weight limits than the new federal limit, those states had their higher limits grandfathered.

Until 1982 the determination of whether a state had grandfathered rights to issue special permits allowing trucks heavier than the federal limit on the Interstates was made by the Secretary of Transportation through the Federal Highway Administration.

In 1982, however, Senator Steve Symms sponsored an amendment which has created complete chaos. It gives each state highway department absolute discretion to determine whether it has grandfather rights, no matter how tenuous or blatant the claim.

The result has been an explosion in the number of overweight trucks on Interstates. The number of divisible multi-trip permits for overweight trucks has increased by more than 300 percent[25] since the Symms Amendment was added to section 127. And FHWA, despite possessing proof that state grandfather claims are inaccurate, remains powerless to protect the Interstates and the motoring public because of the Symms Amendment.

The Symms Amendment must be repealed now.

CONCLUSION

Mr. Chairman, Congress must act now to stop the spread of overweight and overlength trucks. CRASH urges this Committee and Congress to report out and pass H.R. 4496, the Safe Highways and Infrastructure preservation Act of 1994.

Senator EXON. I just have a question or two. In the first part of your testimony, you used some statistics with regard to trucks involved in accidents. And, I thought they were particularly telling.

Do you know offhand what is described as a truck in those statistics you referenced? I mean, I can understand LCV's. Does a truck in the statistics you presented include anything down to, say, a half-ton pickup truck, farm truck, or is it only commercial trucks?

Ms. KONZ. I think probably Dr. Donaldson is better qualified to answer that question since he helped collect that data.

Senator EXON. OK.

Dr. DONALDSON. The data base, Mr. Chairman, basically, from 1993, if you accept the Insurance Institute for Highway Safety's figures or you accept the U.S. Government's figures, 4,700-some-odd or 4,800-some-odd people died in heavy truck crashes.

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[24] Federal Highway Administration, "The Feasibility of a Nationwide Network for Longer Combination Vehicles," Report to Congress, June, 1985, p. 11-25.

[25] Overweight Vehicles—Penalties and Permits, Federal Highway Administration, 1993.

Of that number, approximately 500 of them were in single-unit trucks. That's a truck that's over 10,000 pounds gross vehicle weight rating—4,200-plus died in tractor-trailer rigs of various kinds. And those are all over 26,000 pounds gross vehicle weight. So, the great majority of those fatalities that Kay referred to were in tractor-trailer rigs, combination rigs.

Senator EXON. They were commonly what?

Dr. DONALDSON. Combination rigs.

Senator EXON. Combination rigs.

Dr. DONALDSON. Yes. Eighteen-wheelers or a few LCV's, and some western doubles with short pups.

Ms. CLAYBROOK. But not pickup trucks.

Dr. DONALDSON. Not pickup trucks.

Senator EXON. Not pickup trucks.

Dr. DONALDSON. Nothing below 10,000 pounds are in those stats.

Senator EXON. In other words, we talk about trucks—you would be surprised at the number of trucks that are running around Washington, DC. I have never been able to quite figure out why or how. But, I suppose per capita, there may be as many pickup trucks in Washington, DC, as there are in North Platte, NE. I never quite understood what that was all about. But it is the "in" thing. In any event, though, they are not the type of trucks you are using in your statistics here.

Dr. DONALDSON. Nor even larger trucks like panel trucks or step vans, nothing like that.

Senator EXON. OK. Thank you. Kay, let me ask you this question: As a volunteer for Citizens for Reliable and Safe Highways, what type of feedback have you gathered from the public regarding the size of tractor-trailers on the highways? I assume that you have done some surveys or questionnaires on this in Nebraska. Do you have any information particular to Nebraska, or do you have information on the broader scope of CRASH organization's activities across the Nation?

Ms. KONZ. Certainly, the CRASH coalition in Nebraska is very committed and believes that this is a very important issue. In terms of collecting data within Nebraska, it is done on an informal level.

And every one I have spoken with is convinced that we need to limit the length of tractor-trailers as well as their width. I believe Joan can probably comment on that further.

Ms. CLAYBROOK. I think that if you look at any of the public opinion polls on this issue, on the size and weight of trucks, Senator, you will find that the overwhelming majority of the public are extremely concerned about this issue.

The American Automobile Association has done some research in this area. And we would be glad to submit for the record the information that we have.

In 1991, during the debate over the LCV freeze, there were a number of television ads that you might remember with an 800 number. And there were, I think, 100,000 people who called that number and wanted more information, an overwhelming response on this issue.

I have never spoken at a forum or been involved in any issue where there is as much unanimity among the public as there is on the issue of size and weight of trucks.

Senator EXON. Joan, thank you very much. I appreciate that for the record. We are trying to get all the information we can as we continue to review this issue. Also, thank you for being here. I had hoped you would get into the conversation somewhere. You have been good enough to come before this committee on many, many occasions. Never have I ever seen you shut out, and I did not think you would stand for being shut out this morning. I am glad you spoke up.

I just have one other question, I believe, of Dr. Donaldson, or if the other two care to comment on it, feel free to do so.

What is your view, Doctor, of the assertion that truck safety has improved through initiatives such as advancements in truck brakes, implementation of driver-training courses, and establishment of safety enforcement programs?

Dr. DONALDSON. My response in general—I would like to address each of those in turn—is that we have improvements. And I would like to applaud those improvements including some of the efforts of the trucking industry to make our highways safer with better trucks.

As far as brakes go, we do have a very aggressive rule that was put out by the National Highway Traffic Safety Administration to improve truck brakes.

That not only includes the obvious, the antilock brake rule, but also, of course, things like automatic adjustment indicators and automatic slack adjusters on brakes so you are not down there underneath the truck trying to do a guess—or—by-golly eyeball job of whether your brakes are in adjustment or not. That will help a lot as that kind of technology moves through the fleet over the years.

As far as enforcement goes, our motor carrier safety assistance program has done a lot of good things over the dozen years it has been in existence.

I am still not happy with the number of inspectors we have out in the roads. I still think there are far too few trucks that are being inspected out there with far too few inspectors out to do the job.

And a lot of trucks, probably the overwhelming majority that are running either illegally overweight, or with dangerous brakes or bald tires or drivers who are violating the hours of service regulations without being detected, are not being caught because the chances of being caught are pretty remote.

Senator EXON. OK.

Ms. CLAYBROOK. Mr. Chairman, I'd like to submit some information for the record on this issue because there has been the claim made that there has been a big decrease in truck fatality rates. And while there has been some reduction, not in recent years has it been significant.

But I would like to mention one other thing that came up earlier in the testimony of the Federal Highway Administration with regard to NAFTA.

You asked the question about whether or not the—and this was clarified by the GAO—about whether or not the Congress would have to be consulted in any negotiations over NAFTA.

And it was said that you would have to be. That is correct with regard to weight because there is a Federal weight requirement. There is no Federal length requirement.

And so the Department of Transportation, in your particular area of jurisdiction, would have authority because there is no Federal weight limitation to negotiate under NAFTA without necessarily asking for any Federal congressional authorization for this.

And one of the reasons that we think that the committee is—it is very important that the committee is considering at this time the issue of length along with other—the committee is considering weight is this issue.

And so, I do think that that ought to be a part of your calculus, because if you do make a determination to support length legislation that has a particular Federal length limit, then you would have to be consulted, obviously, before any further negotiation decisions were made.

Senator EXON. Thank you for that, Joan. You got my attention with that. I hope you got the staff's attention.

I thought that I clearly asked the right question of Government officials who were here. I thought their answer to me was because of the way the law is written and the way NAFTA is written, they could not give away anything with regard to weight or length of trucks which exceeded what was authorized at that particular time by the Federal Government.

Ms. CLAYBROOK. Well, I can just give you an example. There is no Federal weight-Federal length limit. And so therefore, the only limits are at the State level.

And what happened with regard to driver licensing, which in the past has been a State level requirement, is that when they—the Department of Transportation in 1992 signed an agreement, an international agreement with Mexico and Canada over driver licensing, the State of California objected.

The State of California was told—and I would be glad to submit information for the record on this—was told that they would lose their Federal highway funds if they interfered in this process. And so they backed off.

So, where you have a situation where it is only individual States that might be affected, the Department of Transportation is the 800-pound gorilla. And so there is an advantage, of course, to having the Congress involved.

Dr. DONALDSON. Could I footnote Joan's response, Mr. Chairman, with your permission? Joan is accurate in everything she says.

But I think that one of the things that has to be emphasized here, underscored as strongly as possible, is that the highway system right now, including the interstate system for the trucking industry is a spoils system.

And indeed, contrary to the 800-pound gorilla in the domain of Congress, having only the discretion to change our nominal weight laws on both axle and gross weights, in fact, the Federal Highway Administration which has direct oversight for weights on our highways, on our interstate highways, is the 98-pound weakling on the beach, because right now, Mr. Chairman, the States are operating under an unfettered interpretation of their own grandfather rights pursuant to the 1956 Interstate Highway Act to accord themselves

higher axle and higher gross weight limits than on the books in 23 U.S.C. Section 127.

And what is happening is every day of the week we have tens and tens of thousands of trips being run in about one-half the States in this country under special permits.

Some of those special permits are being awarded on the notion that the loads that are being pulled are somehow nondivisible, indivisible loads when, in fact, they are commodities which are inherently divisible.

Those permits are available cheap. They are easy to get. They do not even come close to recapturing the destruction of our roads and bridges.

And right now, to be cynical about it, both the Federal Highway Administration and the trilateral negotiators at NAFTA have the capability, Mr. Chairman, to use far higher weight limits through many States than an 80,000-pound limit that is on the books right now in Federal law to facilitate the increase in the weight of both Mexican and Canadian trucks.

And they can also provide inducements particularly to border States to raise their weight limits off of the interstate system, particularly on major, what are going to be, National Highway System routes.

And then we have the absurd proposition which will be brought before Congress that higher weights are operating on major highways off the interstate system.

Why do you not give us some uniformity and parity by raising the limits on the interstate system and give us those higher weight limits which are a halfway house to what Canadian and Mexican representatives want?

That is what is developing in Cancun, Mexico, right now, Mr. Chairman, and what eventually will probably be brought in front of you as being an international fait accompli for your consultative "agreement" on its probity and its value and its safety and economic consequences for Americans.

Senator EXON. Thank you. I gave them forewarning.

Dr. DONALDSON. Yes. You did.

Senator EXON. I am very much attuned to that. The lawyers have gotten into this thing now. They usually do. I am advised that basically, however, with the LCV's, there is a Federal freeze.

Ms. CLAYBROOK. Yes, with the LCV's there is. That is correct.

Senator EXON. That they could not violate the LCV freeze in negotiations with NAFTA. But there is a question about the length of individual trailers; is that right?

Ms. CLAYBROOK. That's right. On the LCV freeze, which was enacted in 1991, it does prohibit all States other than those that had the LCV's in 1991 from using LCV's. And it's by particular highway. And so that is correct. The LCV freeze does help.

But if it is not an LCV, but it is just the individual trailer length, then they certainly could do it. And as Jerry says, off the interstate, they could also do it unless the NHS system adopts the 80,000-pound weight. So, there are some big loopholes we see.

Senator EXON. Do any of you have information as to what percentage of Mexican trucks are what we generally refer to as a sin-

gle length rather than LCV's, or is the mixture of the trucking industry in Mexico about the same as it is in the United States?

Dr. DONALDSON. No. It is not, Mr. Chairman. The preferred rig in Mexico is a 45- or 48-foot box on the back of a single tractor. Their trucks are built significantly different than they are in the United States.

You heard testimony earlier today from Ken Mead about the substantial increase in the tare or dry weight of a tractor-trailer rig down there.

It is because they are built very heavy with very, very durable suspensions, particularly because of the fact that the majority of their travel in Mexico is on unpaved roads to this day.

And I might point out, just as an aside, that those trucks are particularly destructive to American highways, especially if you already have any degraded pavement. They will beat a road to pieces at a rate many times faster than an American truck.

Ms. CLAYBROOK. There is also—Canadian vehicles are longer. The Mexican ones are shorter. They did not want to actually have the 53-foot trailers in Mexico, but they have acceded to that now, it is my understanding.

Dr. DONALDSON. Canadians use LCV's in a much more popular way than the Mexicans do.

Senator EXON. I thank this panel very, very much. Gerald, thank you. Thank you, Joan, and thank you, Kay, for being here. We have submitted your full testimony for the record. You are excused.

[Pause.]

Senator EXON. The witness today is Thomas J. Donohue, the president and chief executive officer of the American Truckers Association.

Tom, would you please come forward and take a seat? As I have indicated previously, your record has been included, Tom, in the record at this time. I would appreciate you summarizing your prepared testimony at this time. We are glad to have you before the committee once again.

STATEMENT OF THOMAS J. DONOHUE, PRESIDENT AND CHIEF EXECUTIVE OFFICER, AMERICAN TRUCKING ASSOCIATIONS

Mr. DONOHUE. Well, thank you very much, Mr. Chairman. We are happy to be here.

It has been a long, hot summer with the Congress in town—longer than we would like, I might say. And so first, may I say to your committee and to your staff, a very special thank you for helping us through the difficult discussions surrounding trucking deregulation, ICC funding, and other matters.

The bill which you have put forward leveled the playing field and brought common sense to a very difficult situation. We thank you very much.

Senator EXON. Thank you.

Mr. DONOHUE. Second, Mr. Chairman, much to the surprise of some people in the room, today I will confine my comments to a number of safety issues that are underway that we would recommend that you and your staff consider. I will leave the discussions of longer and bigger trucks to the studies that are being conducted by those in Government and those outside of Government.

I think it will be some long time before we are back here talking about whether any adjustments or changes ought to be made, although I will make one comment, in concluding my statement today, about some of the economic factors that the staff and you might want to be thinking about in the future.

Let me first just say a word. You know that since my arrival at ATA a little more than 10 years ago, safety has been our primary concern.

Together with DOT and the Congress, and in particular this committee, we have passed the commercial driver's license. We have eliminated the safety exemptions in commercial zones. We have, much to my wife's chagrin, talked and done things about radar detectors.

We have created a Federal requirement for mandatory random drug testing which we vigorously advanced. And we have a 1,000-percent increase in the number of roadside inspections this year. That amounts to almost 2 million inspections.

The industry went out and did things itself. Not every safety effort involves Government. ATA provides a safety audit to any company in the country that would like it.

We work with the railroads on Operation Lifesaver to improve safety at the rail crossings.

We have fielded road teams of professional truck drivers with more than 1 million miles of safe driving, on national and State levels, to go out and educate young drivers and older drivers and drivers of all types.

We have worked with the Federal Government money to put an incident management program in place that clears up congestion and improves mobility very quickly.

The results of this are very clear. While we have had an increase of about 43 percent in the number of miles we have driven over that time, we have reduced the rate of fatal accidents by 39 percent.

A number which I have not talked about and which I have just gotten my hands on shows that, over that period of time, because of what we have all collectively done, we have avoided killing about 13,370 people, for savings based on Federal calculations of about $10 billion. If you include pain and suffering calculations, it amounts to a savings of about $37 billion.

We can be proud of these accomplishments. But there is much more to do. Mr. Chairman, let me just quickly mention the "much more to do."

We are all working to move forward on alcohol testing. We do have a problem. The Congress ought to look at the question of preemployment testing. That is really a stupidity test.

It is not a safety test. If you come for a job interview drunk, you ought not to be hired. But the unnecessary costs of testing are very, very high. We are now in court on the matter. I hope you would take it into consideration.

Second, we support antilock brakes. We want to see every new major truck in this country have them by the turn of the century. This is a system that should be put in gradually to accommodate creating maintenance systems.

We have experience that shows that we are still having a lot of problems with antilock brakes. We oppose the National Highway Traffic Safety Administration's proposal to put them in in the next 18 months. But we vigorously support moving ahead.

Further, we are concerned with NHTSA's design standard approach. It is illegal. We need NHTSA to create performance standards so the people who know how to make brakes will have the flexibility to go ahead and do so.

I hope that you will get NHTSA to rewrite this proposed rule in performance terms, phasing it in at about 25 percent a year beginning in 1996, and getting it all done in 4 years.

Let me turn to your most important comment today, Mr. Chairman, when we talked about drivers. We all know that 10 years ago the Government spent 95 percent of its money worrying about truck safety in the form of the truck and only 5 percent on the drivers. You have driven that misplaced emphasis to almost a turnaround and a totally different number.

Let me add a couple of driver issues we ought to all be thinking about. The commercial driver's license has been a wonderful addition to our arsenal of improving safety. But it has some problems.

Some States are not effectively transmitting the information on licensing, identification, and disqualification to other States. That must be changed.

Also the CDL test in some States is not brought up to date. So, if you mark a correct answer about hazardous materials, you are going to be marked wrong because the States are using the old rules and regulations.

We think we also should look at a biometrics identifier. That would address the question of making sure that people only have one license. With increased NAFTA trade, we want the people on the other side of the border to live by the same rules.

Next, we ought to take a look at random alcohol testing and build on the test that was done in four States and do roadside alcohol testing by Government officials. This puts every driver at the risk of being tested. It puts common sense into the whole alcohol testing arena.

Let me say another word about the commercial driver's license. We think skills testing ought to be expanded. When we first put the CDL in, we exempted everybody that already had a license to drive a big truck from taking the driver's road test.

Maybe it is time to go back and say, "Now, on a regular basis, we are going to skills test everybody that drives a big truck."

I think the Congress would do well to work in this area.

As you know, we are doing some studies in fatigue. It is a serious concern. I think we can do a lot.

Safety can be improved if DOT and the Congress and ourselves were to give a better indicia to people who drive a heavy truck as to when they are fatigued, do training, and get them to understand when they should get off of the road.

And finally—let me say two "finallys" if I might. One, we ought to have a mandatory release of driver safety information. You know, if I want to hire a truck driver now, and I go back to his previous company and want to know about his safety record, his behavior record, I cannot get it.

I can get it about drug testing because you have finally changed the law. But people can have a terrible safety record, and the hiring company cannot find it out. You can fix that matter by making sure that DOT broadly uses its new legal authority.

And finally, I would like to comment about a point that Administrator Slater made. If we do the National Highway System and do it right, that will improve safety.

Let me conclude, Mr. Chairman, by saying that we are proud of what we have done in the safety area. But there is much more to do. We want to work constructively with this subcommittee and the Federal agencies to make our roads a safer place. We are willing to pay the price to do it.

I think we should conclude with one other thought though: That is, Dr. Donaldson lamented a little bit about the increase of freight movement on the highways.

For the past 40 years, we have doubled our population. We have doubled our position in the worldwide trading system. And that causes increased movement of freight.

You have to look ahead. If the railroads in this country can double their intermodal freight over the next 5 years, double it—and they are going to be seriously stressed to come close—truckers still have to move 30 percent more freight, drive 31 percent more miles and put 14 percent more trucks on the road just to keep up with modest economic growth and the jobs that we want for our children and for our communities.

Mr. Chairman, we look forward to working with you and those who testified here on behalf of the Government and those that testified here on behalf of the safety groups. The safety groups send a message that we can look at and measure that which we ought to react to positively and that which we ought to think about more thoughtfully.

Thank you very much, sir.

Senator EXON. Mr. Donohue, thank you very much.

[The prepared statement of Mr. Donohue follows:]

PREPARED STATEMENT OF THOMAS J. DONOHUE

ATA REPRESENTS THE TRUCKING INDUSTRY

I am Thomas J. Donohue, President and Chief Executive Officer for the American Trucking Associations (ATA), the national trade association of the trucking industry. The ATA federation includes affiliated associations in every state and II conferences. Together, ATA represents every type and class of motor carrier in the country. We are a federation of over 40,000 member trucking companies.

Thank you for scheduling these hearings on commercial motor vehicle safety as well as the important issue of truck size.

THE TRUCKING INDUSTRY SERVES AMERICA

Trucking is the nation's largest freight transportation mode. The trucking industry employs 7.8 million people throughout the economy in jobs that relate to trucking activity—more than the separate populations of 42 of our 50 states. We have gross freight revenues equal to over 5 percent of the Gross Domestic Product—a total of $290 billion in 1993. Trucks haul over 77 percent of all manufactured goods and transport 43 percent of total tonnage shipped by all modes—2.9 billion tons of freight annually.

Based on preliminary projections, we anticipate that by the year 2000, domestic freight tonnage will increase 30 percent. Between the years 1992 and 2000, the number of class eight freight trucks needed to haul it will climb 14 percent, to 3 million, and the miles these vehicles will be required to travel to deliver this freight

will increase 31 percent. And all of this is if economic growth is at a conservative 2.8 percent per year and we are able to double the intermodal use of railroads.

SAFETY IS OUR NUMBER 1 ISSUE

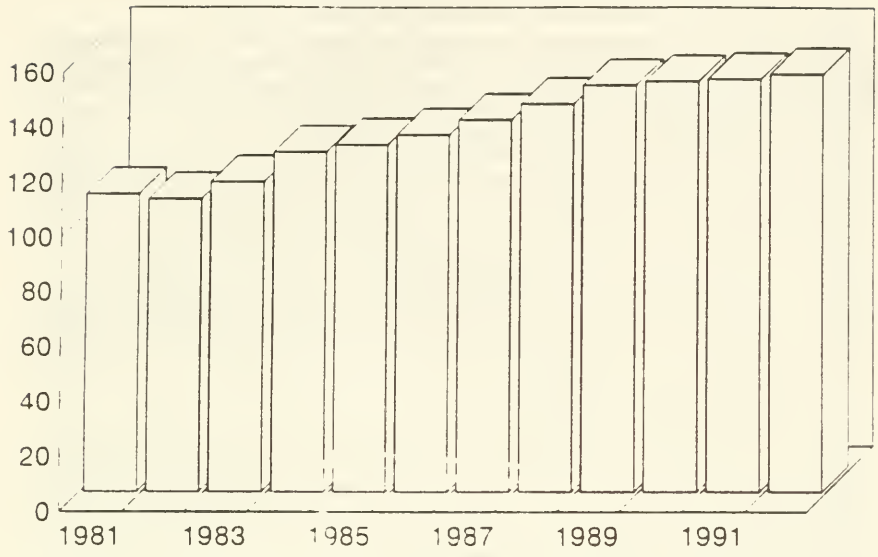
ATA has initiated numerous programs for the trucking industry to improve safety, including: training programs for drivers, supervisors, and driving schools; management programs to assure safe vehicles, safe drivers, and safe operations; research to reduce accident experience; and, cooperative programs to improve vehicle performance, especially in the area of truck brakes. We have also been strong and early advocates for the establishment of the Motor Carrier Safety Assistance Program (MCSAP) and increased inspection efforts; creation of a Commercial Driver's License (CDL); elimination of the safety exemption in commercial zones; implementation of brake improvement research; requirements for drug and alcohol testing; and banning radar detectors. We provide a safety audit service to all motor carriers to assist them in understanding and complying with the Federal safety and hazardous materials regulations. We help the carriers establish the necessary safety management controls to ensure a continuing effective safety program that will reduce accidents on our highways. We have an active program, working with Operation Lifesaver, to improve grade crossing safety.

We, like all people who use the highways, are concerned about highway congestion. Incidents—vehicle accidents and breakdowns that tie up highway traffic—are a major cause of urban highway congestion. To address this issue, we have formed a National Incident Management Coalition which is an ad hoc group of private and public organizations dedicated to alleviating incident-induced traffic congestion. The coalition builds consensus on, and promotes and implements incident management programs through a series of promotional and educational conferences.

ACCIDENT FREQUENCIES ARE GOING DOWN—WHILE MILES DRIVEN ARE INCREASING

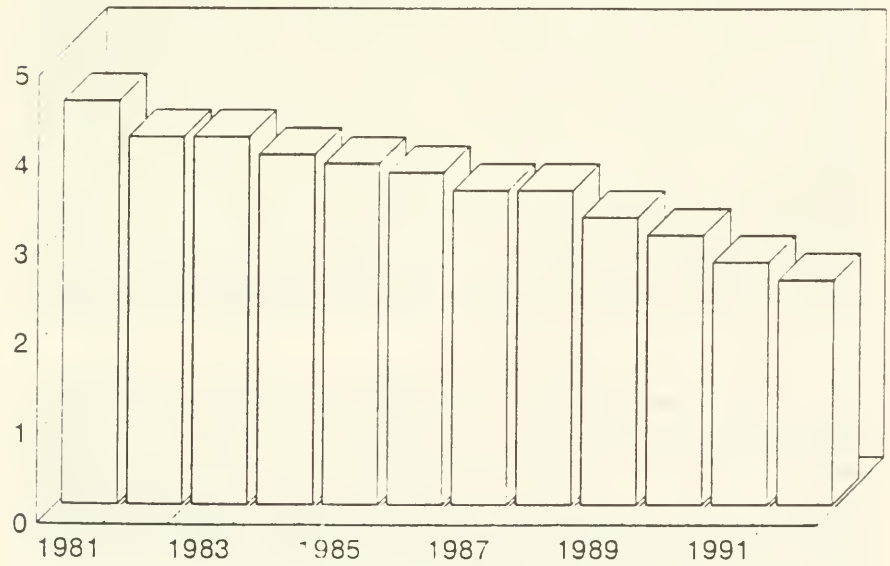
According to DOT, the 1982-1992 10-year comparison shows that the number of fatal accidents has dropped 13.1 percent, the fatal accident rate has dropped 39.0 percent, the number of fatalities has decreased 14.8 percent, while the number of vehicles miles of travel has increased 42.7 percent (see following charts). Based on the 1982 fatality rate of 4.9, and actual vehicle miles through 1992, if we had not made these improvements, there would have been approximately 67, 134 fatalities over the ten year period. Since there were actually 53,758 fatalities, this means that 13,376 lives were saved. The cost savings due to these reduced fatalities from 1982 to 1992 range from $10 billion to $37 billion; ($10 billion excludes the costs of pain and suffering).

LARGE TRUCKS—VEHICLE MILES TRAVELED—100 MILLION MILES



Source: Federal Highway administration.

LARGE TRUCKS INVOLVED IN FATAL CRASHES—PER 100 MILLION VEHICLE MILES TRAVELED, 1981–92



Source: Fatal Accident Reporting System.

These safety measures are paying off through the efforts of many people, including Congress, DOT, the motor carrier industry and, of course, drivers. Accidents involving commercial motor vehicles are showing a steady decline. These are figures we can be proud of, but there is still a lot of work to be done.

These safety results build on the programs of the past. Let me turn to changes that need to be made in the future to improve on our safety efforts.

SAFETY REGULATORY ISSUES—ALCOHOL AND DRUG TESTING—CHANGES ARE NEEDED

DOT should not require pre-employment alcohol testing

We have strongly supported the Department of Transportation's drug testing programs and have joined DOT in court to defend roadside drug and alcohol testing. We also support the principle hat the transportation industry must be alcohol free. That is, the driver should not use alcohol while he or she is on duty, and the driver should not report for work under the influence of alcohol.

Under the mandate of the Omnibus Transportation Employee Testing Act of 1991, DOT published final rules requiring, among other things, pre-employment and random testing of commercial motor vehicle drivers. This includes not only heavy-duty truck drivers, but also drivers of church buses, school bus drivers, and drivers working for the Federal, State and local governments, or over 6.3 million drivers.

We have long supported random drug and alcohol testing of truck drivers and support the majority of the new testing rules that go into effect on January 1, 1995. However, when it comes to pre-employment alcohol testing, we believe that DOT has not applied a common sense and realistic approach. Pre-employment alcohol testing is a stupidly test, not a safety test. This is because there is nothing illegal about consuming alcohol before applying for a job. Preemployment testing for alcohol would not further the goals of the Omnibus Testing Act and would divert resources from other safety activities.

DOT did not base this mandate on a belief that such testing was wise, useful, cost-effective, or in any way likely to promote safety. Indeed, in the preamble accompanying the final rule, DOT more than once questioned the value of pre-employment alcohol testing. DOT enacted this requirement for only one reason: the belief that the Omnibus Act left them no alternative. We do not agree and have filed a court suit to overturn DOT's erroneous interpretation.

Random drug testing rate should be 25 percent

FHWA's recent expansion of the drug testing rules to include all holders of commercial driver's licenses (CDLs) will dramatically increase the cost of random drug testing. Based on DOT's own estimates of 6.3 million drivers being subject to these expanded rules, the current 50 percent across-the-board random rate would necessitate 3. 15 million controlled substances tests annually to meet DOT's random test requirements. Based on FHWA's data, at a first-year cost per drug test of $190, we estimate a total cost to the industry for random drug testing at a 50 percent rate to be over ½ billion dollars in 1995 alone. We do not believe the safety benefit is worth the monumental cost, especially given the fact that the positive rate for drug use is less than 4 percent according to a one year study done by FHWA. DOT needs to reinvent the drug rule and find ways to reduce costs.

Data presented on different transportation modes indicate little or no difference in the positive rate of employees for modes that were testing at the 25 percent or 50 percent rate. Moreover, DOT uses a random testing rate of 25 percent for its own employees, so DOT must believe that there is not a significant decrease in deterrence from dropping the rate from 50 percent to 25 percent. Since there is no rational basis to retain the 50 percent level, it should be reduced to 25 percent or lower.

Use of disposable alcohol screening devices

ATA supports DOT's proposal to allow disposable screening devices in addition to costly and complicated Evidential Breath Testing Devices (EBT) for alcohol testing. However, the timing of this proposal places motor carriers in an untenable situation. The Office of the Secretary and the Federal Highway Administration have issued final rules that require motor carriers to use only EBTs. The effective date for the rules was March 17, 1994, with the first implementation date of January 1, 1995 for motor carriers with 50 or more CDL holders. Motor carriers are currently establishing their testing protocols and arranging budgets to implement the new alcohol testing regulations. DOT's failure to have a final decision on which technologies can be used is a serious shortcoming.

Summary

We have three main issues regarding alcohol and drug testing. First, pre-employment tests for alcohol should be dropped. Second, the current random testing rate for drugs at 50 percent is too high. Lastly, alcohol screening devices, other than expensive EBTs, must be authorized. If these issues can not be resolved soon, DOT should postpone the effective date of the testing requirements.

COMMERCIAL DRIVER'S LICENSE—SYSTEM HAS PROBLEMS

When the Commercial Motor Vehicle Safety Act of 1986 was passed and signed into law, it recognized that the cornerstone of an effective licensing program would be an information system that would serve as a clearinghouse of information on the licensing, identification and the disqualification of heavy-duty vehicle operators. The Act requires states to have a system in place for the free flow of all vital information to ensure that we have only qualified and properly licensed drivers on our highways. Unfortunately, not all states are transmitting data on suspensions, convictions and revocations. Without the proper and timely transmittal of data between states, all of the efforts of Congress and others who worked so hard to see the CDL program become a reality will have been wasted.

The 1986 Act provides for the withholding of highway funds for state noncompliance. FHWA should consider withholding highway funds at the earliest possible date when a state does not have an effective CDL information system in place. FHWA should also consider requiring a unique biometric identifier to ensure that the person using the license is the person who took the test.

CHANGES NEEDED IN PROPOSED ANTILOCK BRAKING SYSTEMS RULE

ATA policy favors the use of antilock braking systems (ABS) and is encouraging carriers to purchase them as they buy new vehicles. Our policy calls for a mandate on all new power equipment built after December, 1999 and on all new trailers built after December of 2001. Fleets such as United Parcel Service, KLLM, Penske, Manfredi and Matlack are already buying ABS on 100 percent of their new tractors.

Interestingly, this voluntary use of ABS is turning into a wide ranging and intense field evaluation as it exposes more and more problems with the equipment. In the field, ABS has documented problems with reliability, durability and maintainability. Moreover, there is no general agreement among manufacturers on how to teach drivers to operate the tractor, repair systems; or electrically power the ABS. These indications of a premature introduction of complex equipment is our first concern. Further design improvement is required before they can be effectively utilized.

Our second concern is that the proposed mandate is a design standard, written around today's ABS, and not a performance requirement. As such it violates the Motor Vehicle Safety Act which says that the federal motor vehicle safety standards must prescribe requirements in terms of performance, not design obligations. Further, to impose a rule that designates a particular technical approach is counterproductive to safety because it places a cap on performance by discouraging innovation which can lead to future improvements.

Our third concern involves the practical matter of suppliers having to simultaneously improve current designs while supporting repair/replacement of equipment already in the field. Therefore, ATA has proposed a phase-in of any ABS mandate. This would allow fleets to experiment with different systems, develop maintenance procedures and find out which is best for their operation. This is especially important for small businesses. Suppliers would have time to gather feedback during field experience and produce improved equipment, stock repair parts and provide better field support.

TRUCK SIZE AND WEIGHT ISSUES

Laws that restrict truck size and weight on the nation's highways should be based on careful study of issues such as safety, industrial productivity, highway finance, and traffic flow. These important public policy issues should also consider economic competitiveness among communities to ensure a proper balance is maintained and the playing field is as level as possible for all concerned.

In 1987, Congress commissioned a study on truck weight by the Transportation Research Board (TRB)of the National Academy of Sciences. After two and half years of research by a group of highly respected experts, the TRB released its June 1990, "Special Report No. 225 Truck Weight Limits—Issues and Options."

This study made a series of recommendations to change the Federal bridge formula for trucks with gross weight of 80,000 pounds or less and to allow states to establish special permit programs for vehicles weighing over 80,000 pounds using the existing bridge formula on specially designated routes with appropriate safety, enforcement and fee considerations. The report found that if these actions were taken that the nation as whole would save $4.3 billion and 110 lives per year.

Another 1990 study by the Transportation Research Board, "Special Report No. 227, New Trucks for Greater Productivity and Less Road Wear," found that nine-axle "Turner" Doubles, with 33-foot trailers and a gross vehicle weight of 114,000

pounds are expected to have lower fatal accident involvement rates than existing five-axle twin trailer rigs.

Most recently, the Government Accounting Office (GAO) report, August 1994, "Longer Combination Trucks, Potential Infrastructure Impacts, Productivity Benefits, and Safety Concerns." documents that available data does not show that LCVs have been a safety problem in the areas of low traffic density where they currently operate. GAO also urges that, if Congress chooses to lift the current freeze on the operation of LCVs, that it should consider allowing the expansion only on roads that can safely accommodate the vehicles and by drivers who are skilled in driving LCVs.

The cost of transportation can be reduced by using vehicles that operate safely and hold more freight. For example, Nebraska allows triple trailer operations up to 95,000 pounds while its neighboring states of Colorado and South Dakota allow triples at 105,000 pounds and Kansas allows triples at 120,000 pounds. Under the existing LCV freeze in ISTEA Nebraska must remain at a competitive disadvantage.

A freeze reduces intermodal opportunities. Most intermodal containers travel at some point by truck, so truck weight limits often set the container weight for rail and ship. We should not freeze future intermodal transportation systems based on laws which are 20 years old.

We support the conclusions of the TRB and GAO studies. The current Federal freeze is inherently illogical because a vehicle that is legal and operating safely in one state is precluded from operating in another. We support the study that Administrator Slater has proposed to look comprehensively at truck size and weight issues to see the economic and safety benefits that can arise from improving the productivity of vehicles.

IMPROVEMENTS NEEDED IN SAFETY RATING PROCESS

The FHWA is evaluating the procedures currently used to determine Safety Fitness Ratings and exploring other approaches to develop an improved motor carrier safety fitness determination process.

The safety ratings are used to determine which motor carriers need an in-depth investigation of serious areas of non-compliance. FHWA also uses the rating to sort motor carriers into different programs for educational and enforcement activities. These ratings, which have been assigned to over one hundred thousand motor carriers, are available to the general public and can be obtained by a simple a telephone request.

While the safety rating of a carrier is used as a tool by FHWA in helping to prioritize which motor carriers are scheduled for follow-up reviews, the safety rating has an entirely different impact on the carriers. The for-hire motor carrier industry is under scrutiny by shippers in their efforts to define the "best" carrier to haul their products. One universal criterion being used in shippers' selection of the best carrier is the safety rating. Many shippers are even in the position of only using carriers with a "satisfactory" rating and will not use carriers that have not yet been rated. Under these conditions an adverse rating can become the "kiss of death" to the carrier retaining the shipper's business. Once a motor carrier loses the shipper's business and the shipper secures the services of other carriers, it is almost impossible for the carrier to recoup the lost business. Accordingly, FHWA must be extremely careful to ensure that the rating process denotes a true and accurate description of the carrier's over-all safety fitness.

We have several items that need to be addressed in determining safety ratings of motor carriers. The first is due process. The severity of an adverse safety fitness determination requires notice to the motor carrier of the proposed change in the rating and an opportunity for the motor carrier to contest the change. The safety fit ness determination must be based on accurate data, with an identifiable method to correct faulty information. Second, the safety fitness determination must be restricted to items that have a direct relationship to the creation of accidents or accident risks. Grouping rating factors and assigning weighted factors distorts the true representation of the motor carrier's safety fitness posture. Finally, forcing all motor carriers into three ratings is too restrictive and fails to give a true representation of compliance.

Let me turn to new initiatives that Congress should support to improve highway safety.

SAFETY INITIATIVES—IMPROVE SAFETY BY CONDUCTING RANDOM ROADSIDE ALCOHOL TESTS

DOT's current alcohol testing program is deficient because it does not include random roadside alcohol tests conducted by law enforcement officers. The key to the success of any random testing program is that the driver never knows when he

might be tested. A roadside program creates the credible threat that a driver might be tested at any time. Random roadside testing will have the greatest deterrence impact, since each driver will have an equal chance of being bested.

DOT originally proposed an option that random testing be done at roadside check points under the Motor Carrier Safety Assistance Program. This is the program that performs over one and a half million inspections of commercial motor vehicles annually. However, DOT did not choose roadside testing in the final rule. Instead, it is requiring employers to do the random testing and owner-operators to make arrangements to test themselves.

Random testing should be a part of the roadside inspection program. We urge this Committee to amend the Omnibus Act and improve highway safety by requiring random drug and alcohol testing to be done by law enforcement officers at roadside.

USE CDL TESTS TO MONITOR DRIVER SKILLS

When the CDL system was created in 1986, it allowed drivers to obtain CDLs without taking a driving skills test, if the driver had been driving commercial vehicles under a valid state license. These so-called "grandfather rights" recognized the practical reality that there were not enough testing facilities to retest the more than 5 million existing commercial drivers.

It is time for Congress to revisit the issue of retesting driver skills. License renewal is an excellent time to ensure that the driver is maintaining his driving skills and to identify drivers who need additional training.

DEVELOPMENT OF FATIGUE COUNTERMEASURES

The ATA Foundation is conducting a major study on this issue as a contractor for FHWA. This study will assess the effects on drivers who operate regular schedules and the effects a driver's age has on performance. It will also answer questions concerning the quantity and quality of sleep and its effect on driver performance and levels of alertness.

We need to move ahead to address issues of driver fatigue by looking at practical measures to improve driver performance. We believe that drivers can be taught to recognize the early signs of fatigue such as misjudgment of speed, crossing marked lines, slow responses and yawning. Once these events occur drivers should rest.

The education of millions of drivers on how to recognize the onset of fatigue, monotony, or boredom and their countermeasures involves driver training and massive educational programs. The Office of Motor Carriers has an Educational and Technical Assistance program already in place. We feel that an educational program on fatigue countermeasures would be a subject that could have a major impact on fatigue related mishaps.

MANDATORY RELEASE OF DRIVER INFORMATION

Motor carriers are facing a difficult time in obtaining driver safety records from previous employers. Past behavior is one of the best predictors we now have to make the all-important decision of hiring or not hiring a driver. The CDL record is a help, of course, but, at best, the CDL is a record of only convictions and lacks important information involving accidents, as well as other information such as was the driver a good driver or was the driver terminated by the previous employer for cause. The Federal Motor Carrier Safety Regulations require an employer to make an inquiry in the driver-applicant's previous employment record for three years. However, the regulations do not require the prior employer to release the information in the driver's file. Many employers do not release information because they are concerned that releasing information could lead to litigation. So, company policy often is to release no information other than the driver was employed between two dates.

As part of the recent amendments to the Hazardous Materials Transportation Act, this Committee required prior employers to release drug testing information about former drivers. Legislation is needed requiring the release of all other relevant previous employment information when the request is made pursuant to a requirement of the Federal Highway Administration.

ROAD WATCH PROGRAM—A SAFETY PARTNERSHIP

I am pleased to report that industry and government recently signed an agreement to use the eyes, ears and communications tools of the trucking industry in ten states to improve highway safety.

Based on an existing program in Pennsylvania, "Road Watch" enlists commercial truck drivers to report reckless driving, vehicle breakdowns, and other safety related incidents to state police. More than 45 motor carriers and 2,300 truck drivers

participate in the Pennsylvania version of the program, known as "Pike Watch." To participate, truck drivers take a short training course that is conducted by a police officer or a police-trained company official. Truck drivers are then encouraged to notify state police via citizens band radio or cellular phone of incidents they observe on the highway.

Since October 1990, several hundred incidents have been reported to the Pennsylvania state police by Pike Watch participating truck drivers. The Pennsylvania state police have made more than a dozen arrests including persons charged with murder, robbery, hit-and-run, brandishing firearms at other motorists, driving under the influence of alcohol, and possession of stolen property.

The Road Watch program is designed to:

- reduce police response times to safety-related highway incidents;
- reduce the number of highway accidents;
- help stranded motorists; and
- test the feasibility of a 50-state program modeled after "Pike Watch."

The ATA Foundation staff will work with state trucking associations, state police, and motor carriers to build the state "Road Watch" programs. The Federal Highway Administration will provide federal funds to help launch these programs. We see this kind of program as a win/win result. Police can use truck drivers for additional eyes and ears and the truck driver can contribute to the safety of other highway users.

CONCLUSIONS

ATA has in the past, and will continue to support new safety programs that will enhance commercial motor vehicle safety. We have fought hard for programs that showed promise of increased safety. The results of these labors can be seen in accident trend data that show a steady decrease in truck accident rates.

- Common sense must be an element in any new program consideration. We are not seeing this in the new alcohol and drug testing rules that will not allow for the most effective method of deterring drug and alcohol use—random roadside testing, and testing for alcohol use that is legal, and this will cost the industry millions dollars during the first year. These are dollars that could be used more effectively in other safety programs.
- The Commercial Driver's License program is the foundation for identifying and keeping unfit drivers off of our highways. We are concerned that there appear to be flaws in the program. Any break-down in the CDL information system needs to be investigated immediately and corrective action taken.
- While we support the antilock braking systems on trucks, we believe that the mandated dates for compliance and the lack of a performance standard can only result in serious setbacks in the years ahead.
- Roadside inspection is the best way to remove unsafe vehicles from our highways and the best deterrent for motor carriers not to operate a defective vehicle. This program must remain dedicated to safety and not become a formula to enrich the coffers of states or any political subdivision of the state.
- The safety rating process cannot become out-dated. The rating must be fair and accurate and based on factors that truly identify unsafe motor carriers.
- More attention and efforts need to be taken to improve and use fatigue countermeasures.
- The time has come to expand the types of information that are disclosed by prior employers.
- Expansion of the Road Watch Program will improve highway safety and draw on the communications capability of the truck driving industry.

Thank you for the opportunity to present these important safety issues to this Subcommittee. I would be pleased to answer any questions.

Senator EXON. In the interest of time, I will have a few questions which I will submit to you for the record——

Mr. DONOHUE. That will be fine.

Senator EXON [continuing]. And I would like to have you get back to us with your responses as quickly as you can.

I just want to thank you for the good working relationship you have had with this committee for a long, long time. Naturally, we do not always agree. But, I want to compliment you for the forthcoming attitude which we have found on a whole series of safety

matters from the great organization you represent. We always want to take a look at your recommendations.

You and I have talked previously, and I tend to agree that we can do—have a better means of testing for drunken drivers or potential drunken drivers than what we have today. I have discussed this issue with the Secretary over there. They have not made any new determination yet. I am hopeful that we can get this matter resolved because I think we are all talking about the same proposition there, "How best do we identify and keep the people who have a drinking problem from driving trucks of any kind?"

You know, I think everybody can agree with this. We will be working in coordination with you on this.

I know there has been a long-term frustration in the trucking industry wiht regard to not being able to go back to previous employers to get information on safety records. Were you aware that the HAZMAT bill which I authored here which was passed and has been signed into law, corrected that? Are you familiar with that clause in the HAZMAT bill?

Mr. DONOHUE. Yes. Mr. Collins, who is the expert on all of this having previously been the lawyer at DOT, said that is correct, sir. The legal authority for DOT to fix the problem is in the bill and we wait anxiously for DOT to issue regulations to make it possible.

We cannot do it yet. We just think that the more information we have, the fewer bad drivers we will have on the road. And we appreciate your help on that.

Senator EXON. There is no question about that. You know, just on the face of it, we certainly do not want drunk drivers, nor do we want drivers with bad safety records. I would suspect that if we had the statistics at hand, we would find that there are more accidents caused by careless drivers who have bad habits as much or more as those with drinking problems.

So, it is absolutely critical that all of the documentation be available. I hope that DOT will move very rapidly on this siutation. Again, I think we see eye to eye on this.

With that, thank you very much for being here.

Mr. DONOHUE. Thank you, Mr. Chairman.

Senator EXON. This hearing is adjourned.

[Whereupon, at 11:50 a.m., the hearing was adjourned.]

APPENDIX

Prepared Statement of the National Industrial Transportation League

The National Industrial Transportation League respectfully submits these comments on the issue of Truck Lengths and Safety. The League supports the safe transportation of goods by truck. The League also supports the nation's weight and other highway dimensional laws. Our policies have long condemned violation of the nation's highway weight laws, and urged shippers to cooperate actively in efforts to eliminate abuses. The League opposes, however, any attempt to freeze or even turn the clock back on improvements to the safe and efficient movement of freight in this country. While there is an 80,000 pound weight restriction on Interstate Highways, the federal government has never regulated weights off the Interstates. Depending on the final NHS route designation, this proposed federal intervention could extend to state, county, and even city roads.

IDENTITY OF THE NATIONAL INDUSTRIAL TRANSPORTATION LEAGUE

The League is the nation's oldest and largest shippers' transportation association and represents the broad spectrum of shippers and other users of freight transportation services. League members include small, medium, and large companies using all modes of transportation to move goods in intrastate, interstate, and international commerce.

BACKGROUND

Congressman James Oberstar (D-MN) has taken a particular interest in this issue and on May 25, 1994 introduced legislation which would prohibit states from registering any trailer, semi-trailer, container, or other cargo-carrying unit that is longer than 53-feet for operation on the Interstate Highway System and those roads designated as part of the National Highway System. The legislation would also prohibit the operation of any vehicle or combination (other than longer combination vehicles) not in conformance with the Interstate weight limits.[1] The legislation also calls into question states' ability to issue over-weight and over-dimensional permits for non-divisible loads.

Representative Oberstar's approach would overturn the laws of 27 states on weight limits and 28 states on length limits. These laws allow mining products to move from West Virginia, agricultural commodities from farms in Wisconsin and Idaho, steel to move from steel mills in Pennsylvania, food products to move to supermarkets in California, and shipping containers to move from ports throughout the country.

POSITION OF THE LEAGUE

Safety: The safe movement of goods is a major concern of League members. Therefore, the League supports the efforts of Congress, the Department of Transportation, the states, shippers, and carriers in making American roads safe. League members are directly and indirectly affected by policies established to ensure safe transportation. First, those League members that operate private truck fleets must directly comply with safety regulations. In addition, League members, as shippers, are consumers of for-hire motor carrier transportation services and are greatly affected by the application of regulations which are intended to ensure the safe and economical operation of our nationwide transportation system.

[1] Interstate weight limits are defined as 80,000 pound gross vehicle weight limitations, 20,000 pound single axle weight limitations (including enforcement tolerances), 34,000 pound tandem axle weight limitations (including enforcement tolerances) on a group of 2 or more consecutive axles produced by applications of Bridge Formula B.

These efforts to improve highway safety have been successful. DOT figures show that fatal truck accidents have declined over the last decade while the number of miles driven has increased; the number of trucks on the road have increased; and the size of the trucks have increased. The reason for this increase in safety is increased enforcement and awareness.

Longer combination vehicles are in use to a limited extent in 20 states, mostly in the West. While safety figures specifically relating to these trucks are incomplete, in the few states where statistics are kept, extra-long trucks appear to be safer than standard trucks. On the New York Thruway, for example, the accident rate for LCVs was 0.92 per million miles compared with a rate of 2.37 for standard tractor trailers.[2]

According to the Transportation Research Board (TRB), reducing the size of trucks would have a negative safety impact since the freight would then require the use of more equipment. The same TRB study estimated that a weight rollback would increase transportation costs by $7.76 billion annually. This increase would result in decreased competitiveness and possible job loss.

Safety is achieved through the strict enforcement of safety laws and regulations not from limiting the size and weight of a vehicle.

Efficiency: American business is constantly under pressure from the tremendous changes and challenges of the world today. Shippers face the challenge of increased competition from every corner of the globe. How they meet these changes and challenges will determine whether or not they survive in the '90s and beyond.

To meet these challenges, business productivity has increased sharply in the last few years, and transportation has to keep pace with this growth. In recent years, transportation has kept pace, having boosted annual productivity by 4.5 percent a year over the last decade, more than twice the rate of all other businesses. Improvements in the efficiency of the trucking industry have been a large part of those productivity gains.

Longer vehicles and longer combination vehicles are enormously efficient, increasing cargo capacity by one-third to one half over regular trucks at only a slightly higher operating cost. Since the majority of goods still travel to market by truck, anything that makes tractor-trailers more efficient holds down both shipping and consumer prices. The converse is also true. Anything that lowers the efficiency of transportation, lowers the ability of the producer to compete in the global economy, which ultimately threatens American employment.

The types of commodities moving in 57 foot trailers are light weight or bulky materials. Shippers seek the efficiency of using these longer trailers for those materials that completely fill shorter trailers before reaching the legal weight limit. It is important to realize that longer trailers are not the same as heavier trailers. A trailer of 57 feet weighing less than 80,000 pounds does no more damage to the highway infrastructure than a fully loaded 53-foot trailer.

To freeze size and weight limits at the current levels would create inefficiency, grant competitive advantage to some facilities at the expense of others, and hurt America's ability to compete. Such a freeze would fail to recognize the dynamic changes taking place in the world of transportation. One cannot turn the clock back for the protection of one mode. If that were the case, borax might still be moved by 20 mule teams instead of freight trains. The market needs to be able to adapt to changes.

One other aspect of efficiency should be considered. Reducing the size and weight of trucks, which would cause an increase in the number of trucks needed to move the same amount of goods, would further exacerbate the national driver shortage.

Permits for Non-Divisible Loads Must Be Preserved: It is of paramount importance to League members that the current ability of states, provided pursuant to federal law (23 U.S.C. 127(a)), to issue special overweight permits on interstate highways where the load cannot be easily dismantled or divided, not be altered, restricted, or changed. The League emphasizes that the state system of issuing overweight load permits is vital not only to the motor carrier industry, but indeed also to the health of the overall national economy. Specifically, companies that rely on the ability to transport indivisible loads utilizing state overweight permits could be irreparably harmed as a result of potentially having to relocate production points or to change their manufacturing and other processes to provide divisible loads that would not exceed generally applicable weight restrictions. Any attempt, therefore, to restrict the state system of issuing overweight load permits may result in the loss of jobs as businesses struggle to change their manufacturing techniques and locations to comply with transportation regulations.

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[2]Journal of Commerce, December 21, 1993.

Arguments have been made in support of restricting overweight permits because of excessive pavement wear. The League questions these arguments considering that, the nation's highway system is paid for in fees and taxes that are directly related to their use. For instance, as the weight of the vehicle and load increase, so does fuel consumption and tire wear. Hence, the heavier a loaded vehicle is, the more taxes and fees it pays to state and federal governments.

Several League members have provided specific examples of how the limitation or removal of over-weight and over-dimensional permits would severely hurt their ability to compete. Armco Steel in Middletown, Ohio, uses these permits to move steel mill machinery needed to keep the plant up-to-date. This machinery is over dimensional and cannot be dismantled further. U.S. Steel of Pittsburgh, Pennsylvania, states that their ability to compete in world markets would be significantly reduced if they could not get special permits to move their products.

CONCLUSION

The policy statement prefacing ISTEA states that the purpose of the statute, in part, is to create a national intermodal transportation system "in a unified interconnected manner" that supports "the Nation's pre-eminent position in international commerce." The NHS includes routes that provide the needed access to intermodal ports and terminals in furtherance of that policy. Any changes or reduction in truck lengths would be a major impediment to full implementation of ISTEA. A freeze or rollback would also pose a major obstacle to the continued competitiveness of American business.

[GAO Report to Congressional Committees—November 1993, "Longer Combination Trucks—Driver Controls and Equipment Inspection Should Be Improved," GAO/RCED–94–21 may be found in the committee files.]

Prepared Statement of Earl Eisenhart, Vice President, Policy and Government Affairs, National Private Truck Council

The National Private Truck Council (NPTC) is the national association of manufacturers, processors, distributors, retailers and service companies that operate truck fleets in support of their commercial activities. NPTC's membership comprises approximately 1200 national and regional corporations, and includes many of the Fortune 500 companies.

Collectively, private, or "corporate" truck fleets haul more than half of the nation's truck freight, and operate 80 percent of the nation's commercial vehicles.

NPTC believes, as a matter of philosophy, that government actions involving the safety of commercial motor vehicles should be based, wherever possible, on performance criteria, while allowing fleet operators maximum flexibility in meeting those criteria. We also believe, given limited resources for enforcement, that government actions should be geared toward "working smarter, not harder" by focusing enforcement attention on those fleets, as well as those elements of accident causation that "need it the most." Our comments today will reflect these philosophies. We offer several examples of current or prospective government initiatives which we believe meet the test for appropriate government involvement and several which we believe do not.

ZERO-BASE REGULATORY REVIEW

An example of government regulation at its best is the Federal Highway Administration's (FHWA) "zero-base review" of the Federal Motor Safety Carrier Regulations (FMSCRs). This initiative seeks to review the existing regulations to determine whether they are rational and justified, understandable, worthy of implementation, performance-based, enforceable and, most importantly, actually enhance safety and reduce accidents.

We wish to commend the Office of Motor Carriers and its new Director, George Reagle, for their continuing strong commitment to this effort. The zero-base review reflects both the desirability of performance-based criteria and the concept of working smarter, not harder. It is an excellent example of a meaningful effort to "reinvent government" in a way that provides the greatest safety benefits while minimizing regulatory burdens.

For example, as a part of the zero-base review, NPTC has asked FHWA to evaluate whether the existing FMCSRs should continue to be applied uniformly to all types and configurations of commercial vehicles. Commercial vehicles come in a va-

riety of shapes and sizes, with varied operating characteristics and vocational uses. Currently, the regulations come in "one size fits all." It may not make sense to apply the same regulatory scheme to a 12,000 pound snack food delivery vehicle as is applied to an over-the-road vehicle with a gross vehicle weight of 80,000 pounds. We believe the regulatory outcome should be based on the safety performance experience of these different types of vehicles. The zero-base review provides a mechanism to address this issue.

We urge the members of this subcommittee to support the zero-base initiative.

INTELLIGENT VEHICLE HIGHWAY SYSTEMS

Better use of data to identify problem carriers and drivers and improve motor carrier safety, particularly through use of Intelligent Vehicle Highway Systems (IVHS) technology, is another means to achieve performance based safety management in a more cost-effective manner.

NPTC has been very much involved in bringing the benefits of IVHS to fruition. We are participating in ongoing demonstration and developmental projects relating to IVHS Commercial Vehicle Operations (IVHS/CVO).

From our standpoint, the greatest potential benefit to be derived from IVHS/CVO is implementation of a nationwide commercial vehicle network, where trucks can voluntarily travel the nation's highways just as cars do, without stopping at state borders and weigh stations. Vital safety and other regulatory checks can be made automatically and without delays. This promises the multiple benefits of lower cost safety enforcement while lowering transportation costs and improving productivity.

However, there are barriers to overcome in putting such a system in place. The most difficult of these is not the technology which in large part, already exists. The real challenge resides in what we call "institutional barriers." This refers to the insistence of many states, and agencies within those states, in doing things their own way at the expense of the greater good. A strong federal involvement will continue to be needed to break down these walls.

This subcommittee has provided strong leadership and support for IVHS. We ask that this continue.

PREMIER CARRIER PROGRAM

It seems obvious that the best way to measure commercial vehicle safety performance is by looking at the number and severity of accidents involving commercial vehicles. Unfortunately, our regulatory scheme does not always reflect this. With this in mind, NPTC would like to direct the subcommittee's attention to the so-called "premier carrier program," another FHWA effort, and other programs like it, that recognize safe carriers. The concept is simple: Identify fleets which have demonstrated superior safety records so that limited enforcement resources can be focused on those fleets that pose the greatest public risk. In order to be eligible, fleets would need to maintain minimum FHWA safety performance standards. As an incentive to participate, fleets could be offered the incentive of uninterrupted, over-the-road service through electronic clearance, thereby avoiding time consuming waits at weigh stations and during roadside inspections. Premier carriers would continue to be subject to random inspections and audits. We ask the subcommittee to lend its support to this important initiative.

CONSPICUITY RETROFITTING

We would also like to provide you with some examples of what we believe are inappropriate government responses to truck safety issues. We direct your attention to a recent rule proposed by FHWA to require retrofitting of trailers with reflective material to enhance "conspicuity." This proposal follows on a National Highway Traffic Safety Administration (NHTSA) Final Rule requiring a very specific type of conspicuity application for new trailers. While NPTC supports efforts to improve nighttime visibility of tracks and our members have been leaders in voluntarily applying reflective material to trailers, we opposed the NHTSA Final Rule because it is neither performance-based nor flexible. It attempts to micro-manage safety by prescribing the precise design and color scheme which must be used. Many NPTC fleets utilize trailers as "rolling billboards." In many cases these treatments exceed the luminosity achieved by the NHTSA Final Rule. As such, they are among the most "conspicuous" trucks on the road. The logos, graphic schemes and colors on these trailers are seriously compromised by the NHTSA Final Rule.

Although FHWA is being more reasonable in its proposal, if it decides to adopt the NHTSA standard, it will cost companies significant sums to remove existing conspicuity treatments on trailers in use when there is no evidence to indicate their treatments do not increase visibility and reduce accidents. NHTSA's standard does

not meet the criteria for effective regulation which the Department of Transportation (DOT) has itself developed for the zero-base review; i.e., it is neither rational nor justified, is not performance-based and is not flexible in its approach as it is not the only way to achieve a reduction in accidents. We believe that DOT's goal should be to increase trailer visibility and recognition, not to mandate a particular type of application or design.

MANDATORY DRIVER TRAINING

There are those who have called for mandatory entry-level training for operators of commercial vehicles and would have the government prescribe a specific training curriculum. NPTC opposes mandatory federal standards for training of entry level drivers of commercial motor vehicles. We believe that the existing Commercial Drivers License (CDL) program provides a performance standard which is the appropriate means to ensure that entry level drivers are qualified to be commercial vehicle operators. As long as the CDL performance standard is adequate, it is unnecessary and unwise for the federal government to specify the kind and amount of training.

We believe the sentiment for federal training standards is grounded on the well-meaning, but flawed premise that a federally mandated and standardized training regimen is the best means of improving the safety of entry level drivers. NPTC believes that the public, the drivers, and industry would be far better served by redirecting the focus to performance outcomes (i.e., the skills and knowledge proficiency of the entry level driver). The real question is: "Is this individual capable of safely operating a commercial motor vehicle?" Training can certainly be an important, and perhaps critical, means to this end, but should not be viewed as an end in itself.

We believe that the appropriate way to assess performance outcomes is through performance testing. We have such a test for entry level drivers in the form of the Commercial Drivers License (CDL) program. The CDL, as currently implemented, is adequate to demonstrate that a driver has the minimum knowledge and skills required to be a safe commercial vehicle operator. As a practical matter, the need to pass the CDL test is also a de facto training requirement, in that the test cannot be passed without some level of study and preparation.

If it is determined that the CDL is inadequate to provide reasonable assurance of safe driving, the proper course should be to explore enhancements to the test. If the performance test is adequate, there is no need for the federal government to impose a new overlay of intrusive and perhaps expensive training regulations requiring additional bureaucracy.

LIMITING TRUCK SIZES AND WEIGHTS

It is generally accepted that driver error is the leading contributor to motor vehicle accidents. Mechanical defect is a significant, but secondary cause. Together, these two elements are far and away the largest contributors to motor vehicle accidents. Congress had enacted important legislation in recent years dealing with both truck drivers and mechanical issues. NPTC has supported almost all of this safety legislation. However, Congress should refrain from legislating requirements that do not have a direct impact on the safety of drivers and vehicles. Legislation further limiting trailer sizes and weights is an excellent example of something Congress should not do. NPTC knows of no credible data to suggest that the heavier or longer vehicles, which some now seek to ban, are any less safe than lighter or shorter vehicles. In any event, the physical characteristics of a vehicle are rarely the determinant factor in the cause of an accident. Additionally, the obvious result of limiting truck capacity is that you end up with yet more trucks. The freight still has to move and it can't all move by rail. More vehicles on the roads means *less* safety, more air pollution and more traffic congestion. Before Congress succumbs to public hysteria about big trucks and acts to limit trailer length, it should consider the same criteria that the Department of Transportation has wisely applied to its zero-base review: Is the requirement rational and justified? Is it worthy of implementation? Is it performance based? Does it actually enhance safety and reduce accidents?

SUMMARY

In selecting appropriate federal involvement in track safety efforts, Congress and the federal agencies should: 1) focus on performance standards which allow businesses maximum flexibility to achieve results in the most cost effective manner; and, 2) concentrate truck safety initiatives on those areas which are most likely to achieve real gains in safety performance. Congress and the federal agencies should

refrain from actions that are not performance-based, and cannot be justified on the basis that they will reduce accidents.

QUESTIONS ASKED BY SENATOR HOLLINGS AND ANSWERS THERETO BY MR. SLATER

Question. I understand that the Federal Highway Administration (FHWA) is undertaking a study on the issue of longer combination vehicles (LCVs). Please provide the Committee with some indication of how the study will be conducted and when it will be completed.

Answer. The Department is currently conducting three studies involving truck size and weight issues.

Last June 14, during testimony before the House Committee on Public Works and Transportation's Subcommittee on Surface Transportation, I committed the FHWA to undertaking a comprehensive study of truck size and weight policy. This study will not be limited to issues surrounding the use of longer combination vehicles. The purpose of the study, being conducted in three phases, is to assess in terms of today's transportation environment—with its new technology, markets, and production strategies—the technical relationships between each aspect of truck size and weight. The study will bring together information on related aspects of truck size and weight across the broad range of vehicle designs and configurations.

We committed to undertake this study in part in response to a proposal to extend Federal truck size and weight controls to the National Highway System and to freeze existing State length limits. We are all concerned about the safety of our highway system and the integrity of the physical infrastructure of that system. Accordingly, we believe a fundamental reexamination of all vehicle size and weight issues is necessary.

A Multimodal Advisory Group within the Department has been established to review study plans and products. This advisory group includes representatives of NHTSA, the Federal Railroad Administration, and the Office of the Secretary. Outreach with affected parties will be an important part of the study.

The study design calls for three phases:

- In Phase I—truck size and weight synthesis—the implications of the relationships among the broad range of truck size and weight issues are being examined using recently completed truck size and weight studies and related research as well as earlier literature in this area. In addition, State and Federal truck size and weight regulations are being summarized, and knowledge and research gaps on truck size and weight issues are being identified.
- This will be followed by a second phase—preliminary option analysis—during which selected policy options will be analyzed and compared using the information collected and synthesized in Phase I.
- Phase III—extended impact analyses—will use the data and tools that will become available in 1995 and 1996 to prepare in-depth analyses of the Phase II policy options. For example, these analyses will reflect options and conditions not covered in the current truck size and weight literature, such as the National Highway System and the National Transportation System now being developed.

Public comment will be requested on the study and suggested policy options through a Federal Register notice currently under preparation. The third phase is expected to be completed at the end of calendar year 1996.

In addition to the above study, and as I mentioned in my September 14 testimony, NHTSA and FHWA also have jointly undertaken LCV studies, mandated by Section 4007(d) of the Intermodal Surface Transportation Efficiency Act of 1991 (ISTEA), that include a series of LCV road tests. The objective of these tests is to determine whether the Department's Federal commercial motor vehicle safety standards should be changed to respond to the operating characteristics of LCVs and the special demands they may impose on their drivers.

NHTSA and FHWA are conducting two studies to meet this objective. One is examining the operating characteristics of LCVs with regard to selected technologies, such as antilock brakes and double drawbar dollies. The second study is an evaluation of how operating LCVs affect driver stress and fatigue. At this point, to complete these complex studies by the statutory deadline of December 18, 1994, does not appear feasible; but, as we have previously communicated to Committee staff, the agencies are making every effort to complete them as quickly as possible.

Question. Will increasing trailer lengths put pressure on motor carriers to replace their fleets sooner than planned?

Answer. Whether increasing trailer lengths might put pressure on a motor carrier to replace its fleet sooner than planned depends on the type of service the motor carrier is asked to provide. The trucking industry is a highly competitive part of the

service sector of our economy; the differing dynamics of its many segments reflect the requirements of its customers. These customers, in turn, respond to the trends in the industries in which they operate. Research now underway is exploring the relationship between shipper logistics considerations (of which truck operating cost is but one component) and truck configuration choice.

Many studies have examined these issues by focusing on the fixed and variable costs of the motor carrier, evaluating the potential gains in productivity from various truck configurations from the carrier perspective only. Longer trailer lengths can provide additional payload for low-density products that typically "cube out" before they "weigh out"—that is, they fill a trailer before the maximum allowable axle and/or gross weights are reached. Based on these expected gains in carrier productivity, predictions have been made of significant savings in freight costs for shippers.

Nevertheless, we know that selection of any particular form of transport will ultimately reflect total costs as viewed by the individual firm or shipper. With freight costs comprising only a portion of the shipper's total logistics costs, many other factors weigh in the calculation of net benefits: product value, length of haul, lane volume, and the cost of carrying inventory. Certain combinations of product value, shipment distance, and annual lane volume can increase inventory carrying costs to the point where they offset the transportation cost savings offered by longer combination vehicles. An example of this is the Just-in-Time concept, which trades off inventory and transportation costs by maintaining small inventories, shipping in smaller quantities, and using faster modes of transportation. By placing a premium on frequent deliveries, use of the Just-in-Time system often results in smaller shipments, thereby placing larger loads at a disadvantage.

Thus, if shippers' particular cargoes can take advantage of increased trailer length allowances, then carriers will purchase equipment which responds to their customers' needs.

Question. Does Intelligent Vehicle Highway System (IVHS) technology provide a way whereby truck length may be increased safely? For example, would the use of collision avoidance devices by trucks allow for the safe increase of truck lengths?

Answer. There are currently no WHS technologies under review which are directed specifically at truck length and its relationship to safety. Nevertheless, future development of IVHS Collision Avoidance technologies may result in systems being available which could assist commercial truck drivers to detect the presence of objects and/or cars alongside or behind their vehicles, thereby reducing problems associated with the present "blind spots" that occur on trucks.

QUESTIONS ASKED BY SENATOR EXON AND ANSWERS THERETO BY MR. SLATER

Question. Are turnpike and highway exit ramps designed to accommodate any particular size trailer?

Answer. Generally, freeway ramps are, at a minimum, designed to accommodate the largest vehicles that are expected to use them in significant numbers. In most cases the largest design vehicle is one with a trailer. However, many ramps are designed to accommodate single unit trucks. It usually depends on the type of highway that the ramp connects to. For instance, a ramp connecting to another freeway would have curvature and widths required to accommodate the largest vehicle that would ever be expected to use the highway in the future—which could be a vehicle with a trailer or trailers as long as 16.2 m (53 ft.); a ramp connecting to a local rural road may be designed to accommodate a single unit truck.

Most ramps are designed, at minimum, to accommodate a vehicle with a trailer 10.1 m (33 ft.) long, although in most cases the minimum design criteria to accommodate vehicles with trailers of this length can also accommodate much longer vehicles that may use the ramp. This is due to the fact that the turning radii of certain longer vehicles, such as doubles, may actually be smaller than that for traditional truck tractor-trailer vehicles.

Question. Does trailer length have any impact on the visibility of either the truck driver or any driver in another vehicle?

Answer. Yes. Trailer length has a direct impact on the visibility of the drivers of both vehicles. The longer the vehicle, the greater the area that drivers of both the longer vehicle and other nearby vehicles have to monitor for visibility.

QUESTIONS ASKED BY SENATOR HUTCHISON AND ANSWERS THERETO BY MR. SLATER

Question. What kind of IVHS technology or other technology would help eliminate congestion and enhance truck safety enforcement? How can we best assist States to deploy this technology?

Answer. The six technology applications listed below are Commercial Vehicle Operations (CVO) "user services." Each offers considerable promise in dealing with a variety of commercial vehicle operational issues which affect both congestion and safety enforcement.

- *Commercial Vehicle Electronic Clearance* will allow safe and legal motor carriers to travel without stopping for compliance checks at inspection sites.
- *Automated Roadside Safety Inspection* will use safety data provided by Electronic Clearance services to allow faster and more selective inspections.
- *Onboard Safety Monitoring* will non-intrusively monitor the driver, vehicle, and cargo and will notify those with a need to know of unsafe situations such as driver fatigue and cargo shift.
- *Commercial Vehicle Administrative Process* will permit motor carriers to purchase credentials and collect and report fuel and mileage tax information electronically.
- *Hazardous Materials Incident Response* will provide emergency responders "on the scene" the information necessary to make fast and appropriate responses.
- *Commercial Fleet Management* will provide a communications link between drivers, dispatchers, and others enabling each to take advantage of real time traffic, cargo, and location information—the last two items are currently available.

Before these services can be deployed there are technical, legal, and institutional issues which must be resolved. Security and privacy of data is of major concern, as is the removal of institutional barriers (e.g., within a single State more than one agency may have authority over motor carriers). Through our institutional issues studies, we have taken initiatives with the States to deal with those barriers. For example, we recently gave $50,000 to each State to develop a plan for providing better cooperation among its agencies with motor carrier responsibilities. Some of the studies are being conducted jointly among the jurisdictions. These studies have proven to be an inexpensive way to educate the jurisdictions and motor carriers about new technologies. These studies have shown that near-term deployment of CVO technologies is not possible without inter-jurisdictional agreement on such issues as data sharing, uniformity, and compliance procedures.

As the technologies and system design of these user services are currently being tested and implemented at selected sites, the exact costs or benefits are not known. Activities that streamline State and industry practices through the application of these advanced technologies are being pursued. For example, the Advantage I-75 project is an international and multistate operational test, comprised of a partnership of all states along the I-75 corridor from Florida to Michigan and continued along a comparable corridor in Ontario. Advantage I-75 is a proving ground for advanced technology that allows transponder-equipped and properly documented trucks to travel any segment along the entire length of I-75 at mainline speed with no more than a single stop at an inspection station.

Question. Mexican trucks will have full access to border States' highways by December 1995, and to the entire country in the year 2000. How can we assist border States shoulder their tremendous burden of truck safety enforcement at the border? This is a national priority, of course, because adequate enforcement shields interior States from the dangers of overweight, overlong Mexican trucks or unlicensed foreign drivers.

Answer. The FHWA is providing States with the resources and technical help to address truck safety enforcement at the border in a number of ways:

- Beginning in FY 1995, FHWA will provide additional funding to border States to augment their current enforcement efforts to accommodate the increased traffic resulting from new trends in continental trade;
- The FHWA has established an International Technical Assistance Group (ITAG) composed of State and Federal representatives (e.g., the Immigration and Naturalization Service, the Customs Service, the Interstate Commerce Commission, State law enforcement agencies, etc.). Both Mexico and Canada take part in the group's meetings. The ITAG was established to:
  - —develop and deliver training and educational programs to all interested groups along the border;
  - —provide technical assistance to the States; and
  - —develop recommendations for responding to problems that may arise along the border.
- The Department has awarded a grant to the International Association of Chiefs of Police (IACP), through the National Highway Traffic Safety Administration (NHTSA), to study the effectiveness of commercial vehicle safety enforcement along the southern border. The primary objective of the study is to develop effective enforcement and compliance strategies to assure that safety is not adversely affected as the North American Free Trade Agreement (NAFTA) is implemented. Enforce-

ment options will be developed which will maximize the safety benefits while minimizing unnecessary impediments to efficient trade. This report is scheduled to be delivered by the end of March 1995.

• The Commercial Vehicle Safety Alliance (CVSA) is an organization of Federal, State, and Provincial government agencies and representatives from private industry in the United States, Canada, and Mexico dedicated to improving commercial vehicle safety. In cooperation with the CVSA and the border States, we have trained over 280 Mexican instructors and inspectors to conduct commercial vehicle and driver inspections in accordance with the U.S. standards. Once Mexico implements its inspection program, a large percentage of the vehicles which reach the U.S.-Mexican border will have been inspected and will already be in compliance with our standards.

• The FHWA has taken a leadership role in the NAFTA's Land Transportation Standards Subcommittee's working group that is seeking to make motor carrier standards in the three countries more compatible. State government officials are actively involved in this effort.

Question. I notice that the House Transportation Appropriations Committee report contains language which reallocates $750,000 of Motor Carrier Safety Program funds to border States, which I strongly support. However, I believe that in the future we are going to have to find additional help for border State enforcement efforts. What kind of assistance could we provide in the future?

Answer. To effectively meet future challenges, the FHWA and the Congress must help the States develop and deploy more efficient programs through increased use of advanced technologies, co-funding of research and operational projects with other agencies, Canada, and Mexico, and increased education and technical assistance programs.

We must continue to assist States in the use of new technologies to:

• monitor carrier, driver, and vehicle compliance with safety regulations;

• automate the safety and other compliance requirements, including advanced weigh-in-motion technologies for weight enforcement;

• use Intelligent Vehicle-Highway Systems/Commercial Vehicle Operations technologies to pre-clear vehicles with good safety performance records;

• develop tri-national electronic information systems to exchange motor carrier information; and

• continue to improve the effectiveness of truck safety enforcement programs.

The United States, Canada, and Mexico have established a Transportation Consultative Group that is concerned with (among other things) the operational aspects of cross-border transportation. In order to assist carriers and State officials, the three governments have begun to exchange information on Federal and State requirements for the operation of motor carrier services. In addition, a system to exchange information from commercial drivers records is already being tested.

The elimination of institutional barriers is crucial to the effective implementation of the NAFTA's provisions. Consistent with the Administration's National Program Review initiatives and FHWA's Safety Management Systems, we must continue to support multi-agency operational task forces in the border States in their efforts to plan and coordinate activities to maximize each program, reduce costs, and streamline requirements for the motor carrier industry.

With new requirements and the opening of new trade and transportation corridors, our customers need current, accurate information on requirements, travel and amenity information, vehicle repair facilities, and road conditions. Multilingual informational materials, information resource centers, and training programs on how U.S. drivers and motor carriers can comply with Mexican and Canadian laws and regulations will be required.

Question. Do you think a study might be necessary in the future to determine the quality and quantity of Mexican trucks crossing the border?

Answer. The best estimate on the quantity of trucks crossing the border has been provided in the FHWA's January 11, 1994, report to Congress entitled "Assessment of Border Crossings and Transportation Corridors for North American Trade." This report states that more than 80 percent of the growing U.S.-Mexican and U.S.-Canadian trade uses highway border crossings and includes commercial truck and passenger vehicle traffic. Projections are that trucks will carry approximately 80 percent of crossborder freight.

In addition, as noted in the answer to your second question, the FHWA has awarded a grant to the IACP, through NHTSA, to study the effectiveness of commercial vehicle safety enforcement along the southern border. This study will provide information about the safety of Mexican vehicles and help determine if there is a future need for a study on the quality of the vehicles. The IACP study will be completed in March 1995.

Question. I note that the House Appropriations Committee also included report language calling for a second installment of the DOT's border infrastructure study. Specifically, you will be called upon to review the distribution of funds to border states (report due May 1995) and priority designation for infrastructure and transportation needs of the border regions in the allocation of discretionary funds and grant awards. Do you think that enforcement assistance to states should be a priority in allocation of discretionary funds or grants?

Answer. In the 1995 Department of Transportation and Related Agencies Appropriations Act, Pub. L. 103-331, the Congress directed the FHWA to review its distribution of funds to border regions. The enforcement assistance requirements of border States funded by the FHWA will be included in this review.

The outcome of that review coupled with other information should provide the Congress with a clear picture of the sufficiency of highway and motor carrier funds allocated by the States to communities in the vicinity of border crossings and other ports of entry. Further, the extent to which there are unmet border-related transportation needs will also emerge.

Question. Enacting a new border/international trade highway funding distribution formula will be a top priority for me in ISTEA reauthorization. Texas estimates that over time it will need $2 billion to implement the operational improvements and highway expansion necessary to accommodate growing NAFTA trade. We must fund highway infrastructure in our border states and we must make our major North-South trade arteries corridors of sophisticated transportation technology to get goods from all over the U.S. to the growing Mexican market. What are your views on funding border/trade infrastructure?

Answer. The Department submitted a report to Congress in January 1994 entitled "Assessment of Border Crossings and Transportation Corridors for North American Trade." It covered a wide range of border issues, including the question of future funding and set out some funding options. At this time, an interagency working group is also studying these questions. In addition, as mentioned in the answer to the previous question, Congress has directed the FHWA to review its distribution of funds to border regions. We anticipate that the results of this study will be transmitted to Congress in the Spring of 1995.

QUESTION ASKED BY SENATOR HUTCHISON AND ANSWER THERETO BY MR. PARKER

Question. I am aware that newly developed safety products could help eliminate separation of unit tractor-trailer accidents. This equipment would provide early warning to a heavy vehicle driver that a trailer is not completely coupled. Does the National Highway Traffic Safety Administration view this technology as helpful in enhancing highway safety, particularly where multiple trailers are involved?

Answer. The National Highway Traffic Safety Administration (NHTSA) is aware of commercial products that ostensibly detect tractor-trailer miscouplings and signal the driver of this event. Sellers of these devices appear to have found a market among carriers who believe that this problem is of sufficient concern to warrant equipping their vehicles with these devices to protect against such occurrences. However, our review of accident data relevant to this issue indicates that these events are rare. In 1990, the last year for which data of this type are available, motor carriers operating in interstate or foreign commerce reported to the Federal Highway Administration (FHWA) that, of the 35,885 accidents involving these vehicles, 79 (0.2 percent) involved tractor/trailer unit separations, resulting in 4 fatalities (0.1 percent of the total reported) and 16 injuries (0.04 percent of the total reported). Therefore, the agency has deemed it neither appropriate nor justifiable to consider requiring all truck tractors and/or trailers to be equipped with such devices.

QUESTIONS ASKED BY SENATOR HOLLINGS AND ANSWERS THERETO BY GAO

Question. Has truck safety improved or deteriorated since the increase in truck lengths?

Answer. Truck lengths have increased steadily over the years. Forty-foot trailers were gradually replaced by 45-foot trailers, and in turn by 48-foot trailers. In 1982, the Congress required that all states permit at least 48-foot trailers and double 28-foot combinations. Currently, all states permit 53-foot trailers, which are replacing many 48s, and a number of states permit even longer trailers. At the same time, cab lengths have increased as sleeper compartments have been added. Longer combination vehicles are permitted in 14 western states and on 6 turnpikes, but expansion is currently frozen by the 1991 act.

Accident rates for all vehicles have improved over the years, including the rates for trucks. There have been several reasons for this improvement, such as completion of the interstate highway system, maturing of the driver population, and highway safety legislation directed both at vehicle characteristics and driver behavior.

It is interesting to note, however, that as trucks have become larger and more numerous, their improved safety record has been more apparent for their drivers than for other vehicle passengers on the road. For example, fatalities among the occupants of large trucks fell from 1,287 in 1977 to 659 in 1991. During the same period, fatalities among occupants of other vehicles involved in large truck accidents only decreased from 3,925 to 3,705.

Question. In testimony presented to the Committee, the General Accounting Office concluded that longer combination vehicles require well-trained drivers in order to operate with maximum safety. Are there any studies that point to other qualifications that such drivers should have?

Answer. Our November 1993 report recommended that FHWA require LCV drivers to have both appropriate driving experience and good past driving records. Both the Western Highway Institute and the Western Association of State Highway and Transportation Officials recommend these requirements, but over half of the LCV states do not requires experience or examine driver records. Four turnpikes and one state have minimum age requirements ranging from 23 to 26. Our March 1992 highlighted operational characteristics of LCVs that can impact on safety and that require driver skill and judgment.

FHWA is in the process of establishing minimum training requirements for LCV drivers is also soliciting comments on potential qualification requirements. Also, the National Highway Traffic Safety Administration and FHWA are conducting a study of drivers, which include on-the-road testing of drivers operating twin 28-foot trailers. These efforts may provide useful information on needed driver qualifications for LCVs.

QUESTIONS ASKED BY SENATOR EXON AND ANSWERS THERETO BY GAO

Question. In the August 1994 U.S. General Accounting Office (GAO) report on longer combination vehicles (LCVs), GAO stated that the current data regarding the operation of LCVs, including accident reports, is incomplete and scarce, thereby preventing an accurate account of how LCVs affect safety on our nation's roads. What type of data is needed and what sources of data must be used to fill the information gap?

Answer. To determine the accident rate for any type of vehicle, the vehicle must be clearly identified in accident reports and there must also be reliable data available on annual miles traveled by that type of vehicle. Neither of these is currently available for LCVs. The current reporting requirements for truck accidents do not include information on trailer lengths and require only partial information on the number of trailers involved. State estimates of miles traveled are made for vehicles with different numbers of axles, but this does not clearly distinguish LCVs from other types of vehicles.

There are currently a number of data sources that provide vehicle accident and usage data. FHWA's Safetynet requires states participating in the Motor Carrier Safety Assistance Program (MCSAP) to report truck accidents. Unfortunately, many states are not yet reporting complete and timely information. Safetynet should eventually improve the reporting of triples accidents, but since trailer lengths will not be reported, double 28s that are legal nationwide will be indistinguishable from long doubles.

FHWA's Highway Performance Monitoring System provides estimates of truck travel by vehicle classes and road types, including the number of axles on combination vehicles. FHWA has been working to improve the quality of the data, which has been hindered by non-uniformity in state methods for selecting road sections and counting vehicles. FHWA's mileage figures have been consistently higher than those of other surveys, leading to a lower computed truck accident rate.

In addition to these data sources, FHWA has undertaken a study of 100 randomly-selected LCV trucking companies to try to determine their safety records. Although this could provide insight into LCV safety, it would not provide ongoing data.

Question. How could the States and Bureau of Transportation Statistics better obtain and correlate relevant LCV information?

Answer. In addition to improving data weaknesses discussed above, FHWA could use the Safetynet truck inspection data to obtain additional information on the quality of LCV maintenance. Inspection reports list the number of trailers on inspected

vehicles, so triples and doubles can be identified. If states allowing LCVs would report the trailer lengths (there are optional state fields on the reporting form), the type of double could also be identified. Once the data were available, LCV companies with a high incidence of critical defects found during inspections could be identified. To date, FHWA has done very little analysis of its inspection data—especially by truck configuration.

Question. Please detail for the Committee the type of models and assumptions used by GAO to help make the determinations in the GAO August 1994 report regarding LCV impact on safety and road repair.

Answer. One important assumption underlying the infrastructure cost and economic benefit figures in our analysis was that LCVs would be allowed to operated nationally on a network of highways roughly equivalent to the interstate network. We pointed out, however, that both costs and benefits would be considerably less if LCVs were confined to those routes that were most suitable for them in terms of physical adequacy and traffic density.

Many of the conclusions in our report were based on studies done for the Transportation Research Board, the Federal Highway Administration (FHWA), other federal agencies, or private organizations. On some issues there was consensus, such as the view that pavement damage from LCVs would not be greater than from other tractor trailers, providing axle load limits and bridge formula weight limits were not increased. On other issues, such as the safety record of LCVs or their potential effect on bridges, there was less consensus and the available studies tended to reflect the biases of sponsoring organizations. In those situations, we consulted with experts, federal, and state officials, gathered what statistical data we could find, critiqued the studies, and tried to identify the most reasonable results. All the studies we reviewed were cited in bibliographies in our March 1992 and August 1994 reports.

Our conclusion that LCVs would not increase pavement wear should not be construed to minimize the damage that heavy trucks do to pavements. Damage to pavements is measured in equivalent single axle loads—the damage done by a single pass of an 18,000 pound axle. Damage increases geometrically as axle load increases, so a heavy truck accounts for much more damage than a passenger car. FHWA has calculated that tractor trailers account for at least 91 percent of the axle loadings on rural interstate highways, and that axle loadings increased 350 percent between 1970 and 1990. A particular concern are trucks that exceed legal load limits and avoid detection. One state has estimated that as many as 20 percent of trucks are operating overweight.

For the most part we did not employ models ourselves. However, to obtain estimates of the potential need to replace bridges for LCV use, we requested a new analysis from FHWA using data in the National Bridge Inventory. We consulted with FHWA in determining the gross weight and dimensions of vehicles to be used in the analysis, in order to reflect the practical maximums that would likely be allowed when bridge formula limits were applied. These vehicles are pictured on p. 21 of our August 1994 report. FHWA's program calculated the maximum stress on bridge members that each vehicle would create, and compared that to the load ratings of bridges in the inventory. When the LCV stress calculation exceeded a bridge's load rating, that bridge was counted as needing replacement, using cost figures reported by the states. However, if a bridge also had an inadequate rating for currently legal trucks, that bridge was not counted as an LCV cost.

States are expected to report two load ratings for each bridge: an inventory rating which allows 55 percent of yield stress, and an operating rating which allows 75 percent of yield stress. FHWA believed that for estimating potential bridge costs, it was reasonable to use an intermediate rating (about 65 percent of yield stress) and its program was designed to calculate this. We asked FHWA to estimate bridge replacement costs using all three ratings, but FHWA found that many operating ratings had not been correctly reported by states, and hence that part of the analysis was not possible to do with any degree of reliability. FHWA provided us results using the inventory ratings, which had also been used in a study sponsored by the Association of American Railroads, and their own intermediate ratings. After speaking with other bridge experts, we decided that it was more reasonable to base our conclusions on FHWA's intermediate rating than on the inventory rating. However, in our report we also mentioned the much higher cost figures that resulted when the inventory ratings were used.

We also critiqued analyses of potential rail diversion from LCVs that had been done using a model maintained by the Association of American Railroads. Our reservations about that model were detailed in appendix I of our August 1994 report.

QUESTIONS ASKED BY SENATOR HOLLINGS AND SENATOR EXON AND ANSWERS THERETO BY MR. DONALDSON

LONGER-COMBINATION VEHICLES

Senator Hollings. The Advocates for Highway and Auto Safety contend that longer-combination vehicles are more dangerous than single trailers, yet the U.S. General Accounting Office's study suggests that on balance the evidence does not support such a conclusion. Please provide the Committee with an explanation for the discrepancy in these conclusions.

LONGER-COMBINATION VEHICLE DATA

Senator Exon. The U.S. General Accounting Office (GAO) has stated that available accident reports and data are insufficient to accurately characterize the correlation between longer-combination vehicles (LCVs) and safety. In testimony before the Committee, Advocates for Highway and Auto Safety (Advocates) stated that these LCVs are not only dangerous to the travelling public, but are responsible for substantially expediting the deterioration of our nation's roads. On what statistics and sources of information are these conclusions based?

Answer. I will address these questions as a unit and append additional information in response to the separate issue on bridge and pavement deterioration.

The GAO's claim that LCVs are no more dangerous than other combination trucks, particularly single semi-trailer rigs, is not based on a comprehensive consideration of the relevant evidence. In fact, a review of the documentation of the three GAO studies over the past few years that review LCV safety fail to acknowledge numerous studies, including well-known data analyses performed by the Federal Highway Administration and the National Highway Traffic Safety Administration.

That said, I must point out that providing the Committee with a exhaustive review of all of the available evidence would be equivalent to authoring a separate study as a response. I will, however, review with the Committee the most prominent indicators of LCV crash overinvolvement.

First of all, it is well-known and well-documented that multi-trailer combination trucks of all varieties are over involved in the most dangerous kinds of heavy vehicle crashes—jackknifes and rollovers:

Combination Vehicle Fatalities Involving Jackknifing

	Total fatalities	Jackknifing
Single-Trailer	4,038	338 (8.4%)
Multi-Trailer	253	28 (11.0%)

Source U.S. DOT, National Highway Traffic Safety Administration, Fatal Accident Reporting System, 1988

All multi-trailer rigs, especially all short doubles and triples, are more prone to jackknife and rollover because:

- Drive wheels carry a lower proportion of total load than singles, thus promoting engine braking lock-up.
- Since multi-trailer rigs have much more opportunity to be unevenly loaded, jackknifing is much more frequent when axles do not carry balanced loads.
- Shorter cargo units and multiple articulation points --three pivot points in triples—provide less resistance to lateral forces once wheel lockup occurs or oscillatory steering inputs occur. thereby promoting rollover.

Combination Vehicle Fatalities Involving Rollover

	Total fatalities	Rollover
Single-Trailer	4,038	552 (11.7%)
Multi-Trailer	253	54 (21.4%)

Source. U.S. DOT, National Highway Traffic Safety Administration, State Accident Report Forms Catalogue, 1988

Other data analysis of twin-28-foot semi-trailer/trailer combinations alone shows a jackknife death rate of 14.5 percent and a rollover death rate of 23.5 percent.

Among the numerous studies that have demonstrated repeatedly the crash overinvolvement of multi-trailer combinations, Oliver Carsten of the University of Michigan Transportation Research Institute reported at the National Truck Safety Symposium held in Washington, D.C. on June 30, 1987, that even the data base formerly maintained by the Federal Highway Administration which represents carrier

voluntary crash reporting shows that all doubles have a probability of rollover four times greater than that for single trailer rigs. See p. 1 and, e.g., Tables 2 and 3.

The GAO is correct, however, that current data collection systems are fundamentally deficient in that, first and foremost, either the basic configuration type of a combination truck is not recorded on crash report forms or, in those instances where configuration category is solicited from attending officers, the configuration is misreported. (For example, in the few states where configuration type is asked on the accident form, it is well-known that enforcement authorities will sometimes code "triple" for a western double with two trailing units—the officer simply looks at the choices listed on the form, looks at the crash-involved rig, counts the tractor and two trailers=three units=triple.)

In addition, as shown by Roger Mingo et al. in 1990, the appropriate analysis of the Fatal Accident Report System (FARS) from the National Highway Traffic Safety Administration, the Trucks in Fatal Accidents (TIFA) data gathered and collated by the University of Michigan Transportation Research Institute, and the Truck Inventory and Use Survey (TIUS) conducted every five years by the Federal Highway Administration generates crash involvement figures for multi-unit rigs that closely track the FARS data on jackknife and rollover involvements which I have shown above.[1]

Mingo, et al., found that fatal crash rates for doubles of all kinds, for example, are 22 percent to 42 percent higher than for standard "eighteen-wheelers."[2] In breaking down data by state, California, which uses western doubles extensively, shows that the fatal crash involvement rate in the state in the 1988 FARS is 98 percent higher than for single-trailer combinations, 115 percent higher than for single unit trucks, and 173 percent higher than for passenger vehicles.[3]

In further analysis of FARS, TIFA, and TIUS data in a May 17, 1991, paper, Mingo used an extremely conservative definition of LCVs to show that LCV crash involvement underreporting is a pervasive problem in accident data collection and evaluation.[4] From 1980 to 1987 alone, at least 71 people died in LCV crashes. Under a less conservative, but still carefully argued, definition of what constitutes an LCV in these data bases, at least 100 people died in LCV accidents. Both of these figures exceed by an order of magnitude the claims of the trucking industry on the safety record of all LCVs. In general, trucking representatives have claimed that LCVs of all types were responsible for only a handful of deaths—perhaps nine or less—during the entire 1980s.[5]

Mingo's analysis relies on a categorization of TIFA data by configuration and inferred trailer lengths. His analysis shows, for example, that at least 14 people were killed in triple-trailer crashes alone from 1980 through 1988. These findings directly confound the claims made by the American Trucking Association that only nine (9) people died in all LCV crashes throughout the 1980s.[6]

These findings by Mingo show that LCV fatal crashes are approximately ten times or more the levels claimed by the trucking industry. Nevertheless, the GAO's basic claims on the inadequacies of LCV crash reporting and data collection/analysis are generally accurate. In fact, prominent safety researchers such as Roger Mingo are the first to admit that,

> the current system of ad hoc state monitoring with no consistent quality control results in the opportunity for much misinformation regarding LCV accidents. Since the current haphazard system of LCV accident monitoring is totally inadequate, it is unlikely that it could be relied upon adequately to monitor the much higher volume of LCV traffic that the ATA proposal for expanded LCV operations would produce.[7]

Even the TIFA data base from the University of Michigan is acknowledged by Mingo to be incomplete. His estimates of LCV crashes are highly conservative be-

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[1] Roger Mingo, et al., "Safety of Multi-Unit Combination Vehicles," R.D. Mingo and Associates, and the Scientex Corporation, Washington, D.C., September 1990. Also see Roger Mingo, et al., "Accident Rates of Multi-Unit Combination Vehicles Derived from Large-Scale Databases," 70th Annual Meeting, Transportation Research Board, Session 163, Washington, D.C., January 16, 1991. Attachment A, Table 1 and 2.

[2] Roger Mingo, et al., "Safety of Multi-Unit Combination Vehicles," op. cit., p. 1.

[3] Id.

[4] Roger D. Mingo, "Longer Combination Vehicle Fatalities from Special 'Trucks Involved in Fatal Accidents' (TIUS) Tabulations," R.D. Mingo and Associates, May 17, 1991. Attachment A, Table 2 and 3.

[5] Roger D. Mingo, "Longer Combination Vehicle Fatalities from Special 'Trucks Involved in Fatal Accidents' (TIFA) Tabulations," op. cit., p. 1.

[6] Id., p. 2. For trucking industry claims on LCV fatal crash involvements, see, e.g., Transport Topics, April 8, 1991, p. 4.

[7] Mingo, "Longer Combination Vehicle Fatalities * * *," op. cit., p. 1.

cause TIFA records "accidents with unknown configurations, known combination vehicles with unknown numbers of trailers, and known doubles with unknown trailer lengths and overall vehicle lengths." Furthermore, an additional danger in data accuracy is the self-reported vehicle and trailer lengths without independent verification. Lastly, the TIFA accidents Mingo analyzed for LCV crashes do not include any adjustment for missing information; it is probable that his final conservative estimates are even more of an underestimation of total LCV accidents.[8]

With these caveats in hand, I would like to supply for your review the two tabulations of LCV fatal crash involvements provided by Mingo in his May 17, 1991 study, supplemented with two bar-graph visualizations of his findings (provided as Attachment A). In addition, I think I would be very valuable to the Committee to provide a serial recitation of the major defects in crash data collection with regard to the accurate discrimination of LCV accident involvement:

- Total LCV vehicle-miles-travelled is a tiny proportion of annual combination truck vehicle-miles-travelled. Consequently, no specific LCV configuration is used enough to allow accurate estimates of the fatal involvement rates or injury crashes for each of the three main types (i.e., turnpike doubles, Rocky Mountain doubles, and triples).
- On a nationwide level, we have no reliable travel data for LCVs and no reliable configuration reporting.
- Wide variations exist among states on truck and, in particular, LCV accident reporting. Some states collect configuration data, others do not.
- States collecting configuration data use different definitions, making it difficult to aggregate crash data by each LCV type on a national or even multi-state level.
- Some states provide relatively accurate information about certain aspects of truck crashes, many cannot.
- As of 1991, vehicle classification is included in the accident reports of 22 states, but not in the remaining states.
- General trailer type is reported in only 20 states.
- Number, size, and character (e.g., kinds of axles) of trailing units are reported in only 14 states.
- Due to these data shortcomings, we cannot judge the safety records of each type of LCV in comparison with single-trailer combinations. For example, Mingo, supra, found a way to discriminate conservative estimates of triples involvements, but could not use the available data bases to distinguish short doubles crashes from Rocky Mountain or turnpike doubles crashes.
- All LCV studies have severe limits in sample size and data accuracy.

Although some of these data shortcomings circa 1991 should be corrected by the national use of the National Governors Association recommended truck crash reporting format, it is unknown to what extent the states have implemented these improvements by late 1994, or to what extent all of the data deficiencies itemized above will be rectified by the NGA's data collection system even if arguable full compliance with the form was achieved.

I'd like now to turn to the issue of pavement damage and bridge deterioration due to heavy trucks, especially LCVs. At the threshold, it should be emphasized that, although the GAO in both its 1994 LCV report and in Mr. Kenneth Mead's oral testimony before Senators Exon and Hutchison claimed that LCVs would damage roads and bridges no more than "ordinary" trucks, the GAO itself points out, as I indicate in my own written testimony submitted for the hearing record, that the "[n]ationwide use of LCVs could generate additional costs to reconstruct bridges because the gross weights of LCVs may exceed levels considered safe on some bridges."[9]

The reasons for this are very well-known: first, no combination vehicles operate more often under overweight permits than LCVs. The whole point of an LCV is to carry much larger amounts of cargo. Except for very light cargo, "cubing out" a triple or turnpike double will almost always exceed both federal and states gross weight limits and often axle limits as well. Therefore, LCVs routinely seek overweight permits to operate these configurations far above nominal weight ceilings,

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[8] Id., p. 3. Mingo goes on to point out that the TIFA data show cargo-carrying trucks with two full trailers sometimes called triples, sometimes not. Certain hybrid rigs with medium-length trailers are sometimes coded as LCVs, sometimes not. Moreover, there are other vehicles with incomplete or inconsistent information which disallow accurate identification. "Together, definitional vagaries and incomplete vehicle information create a potentially significant underestimation problem." Id.

[9] Longer Combination Trucks: Potential Infrastructure Impacts, Productivity Benefits, and Safety Concerns, GAO/RCED-94-106, August 1994 ("1994 LCV Report"), p. 22.

including the 80,000 pound federal limit as well as above even more generous gross limits exercised by several states pursuant to their grandfather rights.

To oversimplify somewhat, bridges suffer deleterious stress in response to the total weight of a rig as concentrated in the given area of the span.[10] This deflection or "bending moment" causes both compression of certain structural members and the stress of other members (that is, stretching forces). Shear forces are also important indicators of bridge strength and excessive shear forces can lead to rapid deterioration and failure of certain structural features. It is important to mitigate the effects of total gross weight by controlling the transmission of weight to the bridge by, in part, requiring certain minimum spacing requirements of axle groups on a combination truck. This is the purpose of the Bridge Formula B of 23 U.S.C. § 127. It means that certain combinations cannot even achieve the legal Interstate system maximum of 80,000 pounds due to improper axle spacings. All other things being equal, however, the better the distribution of total gross weight over a longer section of the bridge deck, the better the mitigation of damaging bridge forces from heavy loads.[11]

On this basis, some LCVs at 80,000 pounds would arguably create less bridge damage than an "eighteen-wheeler" at the same gross weight (given the additional assumption of proper distribution of cargo to ensure axle weight limitations, such as those of 23 U.S.C. § 127 are not exceeded for any axle(s) on the rig).[12] However, as the GAO quotation indicates, there are very few economies of scale available to the trucking industry by assuming the additional capital and maintenance expense of operating a multi-trailer LCV governed only by the 80,000 pound gross weight limit of current federal law. Except for very light cargo, LCVs can only achieve economies of scale by operating considerably above current gross weight ceilings. In those states where they are allowed, this is achieved by routine overweight permits, many of which are clearly issued on an illegitimate basis (e.g., for "nondivisible" loads, although the cargo is, in fact, easily divisible). Generally, speaking, a Rocky Mountain double really only achieves its value of operating with its hybrid combination of a semi-trailer of 48 feet in length pulling a short full trailer ("pup") of 28 feet long when gross weights average close to the 100,000 pound range. Similarly, triples when initiating a less-than-truckload trip are only economically efficient when they exceed 100,000 pounds; and turnpike doubles, dedicated to long-haul movements across several states to move freight similar to the same function of long-haul rail transport, are really only efficient when weights range up to and beyond 130,000 pounds.[13]

With regard to pavement damage, although the GAO in both its 1994 LCV report and its testimony before your Committee claimed that LCVs may even damage pavement less than standard semi-trailer combinations, this claim is belied by the GAO's accurate statement in its 1994 LCV report that LCVs not only average higher axle loads than conventional tractor trailers—thereby causing more damage than "eighteen-wheelers"—but that LCVs composed of short trailing units with single axles, particularly triples, are prone to be a serious offender in axle-related damage because all three "pups" ride on single axles.[14]

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[10] See the example supplied of accelerated bridge distress caused by large trucks in Attachment B.

[11] One of a myriad of short treatments of bridge stress from heavy vehicles is the very readable report authored by David R. Schelling of the University of Maryland, The Influence of Heavy Trucks on the Overload and Allocation of User Costs on Bridge Structures, American Automobile Association Foundation for Traffic Safety, Falls Church, VA, March 1985.

[12] For example, if a turnpike double (tractor + 45- or 48-foot long semitrailer + 45- or 48-foot long full trailer) were to gross at 80,000 pounds, its load, if properly allocated between the two trailers, would be distributed over one single axle and four (4) tandem axles. The gross weight would therefore be spread over a longer distance than the same maximum load in an "eighteen-wheeler." In addition, this loadings would also be very favorable for mitigating pavement damage because, with proper load distribution, each tandem axle would fall significantly short of the maximum weight of 34,000 pounds allowed under federal law. Lastly, this condition additionally favors lower pavement damage because tandem axles whose damage quotient is theoretically equivalent to single axles in fact damage pavement at much higher rate. But this hypothesis, as I indicate in the text, is a contrary-to-fact conditional analysis because virtually no turnpike double can gain any economic efficiencies over a standard semi-trailer rig if it operates at or below 80,000 pounds.

[13] A good, short explanation of bridge damage from truck live loads is contained in the report from the Transportation Research Board, "Twin Trailer Trucks," op. cit., Appendix J.

[14] 1994 LCV report, pp. 31, 5. It is important to appreciate the considerable increase in pavement damage, ceteris paribus, by moving the same gross weight from a rig consisting predominantly of tandem axles into a rig in which the trailers ride on single axles. For example, the Transportation Research Board of the National Academy of Sciences found in 1986 that, even with an adjustment for fewer trips due to increased cargo capacity, short trailer doubles (western doubles), which ride on single axles, will nearly double the net effect on flexible pavement

The point to be grasped here is that all pavement damage is measured by a concept that is more than 30 years old: Equivalent Single Axle Loads (ESALs). The rate of pavement damage by any axle or group of axles is measured on the basis of what they create as pavement destruction in their equivalence to so many single axle loads. This is the reason that, although federal law allows a maximum 20,000 pound single axle limit on the Interstate system, it allows only a 34,000 pound limit for a tandem or dual axle composed of two single axles with no more than five (5) feet separating them. Why not a 40,000 pound limit? Because the engineering calculation of ESALs for a tandem axle shows that a 34,000 tandem axle generates approximately the same amount of pavement damage as a 20,000 pound single axle. In fact, however, single axles on certain kinds of pavements substantially exceed the damage potential of the weight of a supposedly equivalent tandem axle.

This should help to illuminate how pavement damage is aggravated by only slight increases in any axle's weight: the increase in damage is exponential and rapid with each small increment over a baseline.[15] In fact, pavement damage rises as the fourth power of axle weight. For example, let's assume that axle weights are properly distributed over the five axles (tractor steering single axle (=one axle); tractor tandem drive axle (=two axles); semi-trailer rear tandem axle (=two axles)) of an 80,000 pound "eighteen-wheeler." On the basis of ESAL calculations, an increase of only 5,000 pounds in the overall weight of the rig, that is, from 80,000 to 85,000 pounds, would result in only slight increases in each axle's weight over the federal limits of 20,000 pounds single-axle, 34,000 pounds tandem-axle.[16] Nevertheless, pavement damage has now been increased by 130 percent. Moving axle weights upward in concert with an increase from 80,000 pounds to 100,000 pounds—a common overweight permitted condition in many states—increases pavement damage by more than 260 percent.[17]

References to these well-known pavement damage quotients calculated on the basis of the ESAL concept probably number in the thousands. However, it is instructive here to note, in summary, some of the findings on pavement damage made by the Federal Highway Administration in what are often internal studies which we have secured through Freedom of Information Act requests. If the Committee would like copies of any of these truck pavement damage materials, I would be pleased to supply them for your staff's review and evaluation.

- Heavy trucks comprise 92 percent of total axle loads on the rural Interstate system alone. ESALs by heavy trucks on the rural Interstate system have increased by a rate of over nine (9) percent a year since 1970.[18]
- In addition to excessive axle and gross weight limits in some states, the federal government estimates that, overall, more than one-third of all heavy trucks on the road at any time are illegally above federal and state weight limits.[19]
- Transport cost savings from improved truck productivity overwhelm associated costs of increased highway and bridge destruction and of truck accident costs. Many bridges and highway pavements would have to be considerably strengthened or rebuilt to accommodate heavier and larger trucks.[20]
- Current nonuniformity among the states with regard to truck weights, especially on non-Interstate highways, increases the economic advantage to motor car-

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wear compared with tractor semi-trailers on the basis of accepted pavement design/wear relationships. Twin Trailer Trucks, Transportation Research Board Special Report 211, Washington, D.C., 1986, p. 166. Also see, Id., Appendix I which does an excellent job of explaining and comparing pavement destruction among different types of trucks.

[15] The original baseline calculation of heavy truck pavement damage was performed by the American Association of State Highway Officials (AASHO—now the American Association of State Highway and Transportation Officials (AASHTO)) by using a 18,000 pound single axle. In a single traversal of a given stretch of pavement, AASHO found that a single axle weighing 18,000 pounds produces the same pavement damage as traversal of the same pavement by 9,600 automobiles. The AASHO Road Test, Report 5, Highway Research Board, Special Report 61E, 1962.

[16] In reality, the distribution of weight of an 80,000 pound semi-trailer rig can often be about 12,000 pounds on the steering axle with 34,000 pounds on each of the two tandem axles=80,000 pounds.

[17] B. Frank McCullogh and Eric D. Moody, "Analysis of Relative Pavement Damage for Selected Truck Axle Weight Proposals in the State of West Virginia," 1994, p. 2.

[18] Actual Truck Loadings on Highways in the United States and Their Effect on Pavement Design, Federal Highway Administration, 1988.

[19] Overweight Trucks—The Violation Adjudication Process, Federal Highway Administration, July 1985.

[20] An Investigation of Truck Size and Weight Limits: Final Report, U.S. Department of Transportation, August 1981.

riers in several states while causing disproportionate costs in their highway programs and to competing modes of transportation.[21]

• Pavement damage caused by trucks above 80,000 pounds—the preferred gross weight of LCVs—is captured inadequately by current heavy truck user fees. In fact, as gross weights move upward, increasingly heavy trucks, especially LCVs, pay a smaller and smaller share of their proportional user fee responsibilities. As a class, combination trucks registered above 75,000 pounds gross weight pay only two-thirds of their cost responsibility.[22]

• However, cost allocation studies typically obscure individual vehicle user fee deficits by embedding them within very broad user classes. It is likely that high-annual-mileage, very heavy axle-load vehicles pay less than a third of their individual cost responsibilities. Unfortunately, both the Federal government and a number of states have encouraged an excessive shift to heavy-axle weight commercial vehicles.[23]

• Similarly, according to various studies conducted by the Federal Highway Administration and university consultants, the heaviest overweight combinations, especially multi-trailer rigs with single axles such as triples, can be calculated to pay only about one-fifth of their actual cost responsibility.[24]

• The number of divisible load multi-trip permits for overweight trucks has increased by more than 300 percent since the Symms amendment to 23 U.S.C. § 127 in 1982.[25]

• Domestic Freight tonnage, now at 2.9 billion tons of annual goods movements, will increase 30 percent by the year 2000, vehicle-miles-travelled will increase 31 percent, and the number of freight-carrying trucks will increase by over eight (8) percent to three million commercial vehicles.[26]

This last projection of truck traffic by a major trucking official ought to provide appropriate emphasis of the potential for further increases in pavement and bridge damage by heavy trucks. If the LCV freeze were lifted and/or if NAFTA negotiations were to result in higher axle or gross weight limits for U.S., Mexican, and Canadian trucks travelling our federally assisted highways, these projections of trucks, truck tonnage, and truck mileage will not only be revised upward, but will be accompanied by increases in infrastructure damage because trucks will be heavier.

In sum, I think these facts and considerations make it apparent that LCV use, coupled with increases in weight limits due to NAFTA, for example, or the further increase in multiple trip permits, will inevitably result in more bridge and pavement damage because a given amount of cargo will be carried in fewer combinations. Many LCVs, such as triples and Rocky Mountain doubles, rely on the use of short trailers with single axles which are considerably more damaging to pavement than the same amount of weight carried on tandem axles. Without either higher weight limits or liberal permitting practices, LCVs are not economical alternatives to standard "eighteen wheelers." Furthermore, the use of LCVs at weights greater than 80,000 pounds is very advantageous to the trucking industry because of the shortfall in user fee payments by these heaviest trucks when compared with the costs of repairing bridge and pavement damage and what should be the trucking industry cost responsibilities for this excessive damage.

QUESTIONS ASKED BY SENATOR EXON AND ANSWERS THERETO BY MR. DONALDSON

LONGER-COMBINATION VEHICLES

Question. Is the data used for the conclusions drawn by Advocates sufficiently adequate? Please provide the Committee with any recommendations by Advocates for improvements in the data collection process.

Answer. As indicated in my previous response to question from Senator Exon, there are manifold shortcomings in currently available data, including crash information, on Longer Combination Vehicles (LCVs) which has forced investigators and

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[21] Truck Size and Weight User Fee Policy Analysis Study, Federal Highway Administration: Sydec, Inc., March 1991.

[22] Alternatives to Tax on Use of Heavy Trucks, Federal Highway Administration, January 1984.

[23] Managing the Use of Highway Pavements, Federal Highway Administration, n.d.

[24] See, e.g., Heavy Vehicle Cost Responsibility, Federal Highway Administration, Office of Policy Development, 1987.

[25] Overweight Vehicles—Penalties and Permits, Federal Highway Administration, 1993.

[26] Testimony of Thomas Donohue, President, American Trucking Associations, on the National Highway System, March 3, 1994.

researchers to apply ingenious mechanisms to attempt the segregation of data categories for LCVs. None of these systems of interpretation are foolproof.

The Intermodal Surface Transportation Efficiency Act (ISTEA) indicates in a number of places Congressional intent to upgrade the accuracy and reliability of truck data, including crash information. Part of the response to better data collection, especially for LCVs, is uniform, national use of the truck data format of the National Governors Association (NGA). However, the NGA format cures a number of shortcomings in previous data collection systems, such as the former Federal Highway Administration (FHWA) 50-T self-reporting system but introduces simplifying mechanisms that cannot provide the level of detail appropriate to tracking relevant data categories for LCVs.

It is clear to me that an initiative to gather data that are specific to LCVs will not occur through a voluntary national effort but only if the FHWA mandates additional data collection elements for state execution. Given the agency's previous response to unilaterally prescriptive requirements far the states, it is doubtful that this can be achieved.

In the alternative, we believe that Congress should examine the potential of establishing specific data collection and analysis tasks for the new Bureau of Transportation Statistics (BTS) created by Section 6006 of the ISTEA. Centralized data collection requirements that would govern all surface transportation modal administrations would be beneficial in many ways. Given the joint administration of truck data collection by the National Highway Traffic Safety Administration and the FHWA, it could be advantageous to have the new BTS oversee the collection of new data categories that could be used by both agencies for truck safety countermeasures. In particular, LCV data categories on type of configuration, gross and axle loads, road type, driver training and qualification, and other major features of LCV operation could be administered under the stewardship of the BTS.

NATIONAL HIGHWAY SYSTEM IMPLEMENTATION

Question. The Department of Transportation (DOT) has unveiled its proposal for the National Highway System (NHS) which will incorporate approximately 160,000 miles of interstate highways, State highways, and county roads. What role, if any, should truck lengths play in implementing this new NHS? Should the current freeze on truck lengths be extended to include the NHS?

Answer. The current freeze on LCV expansion is not a freeze on single trailer lengths. However, as I discuss in detail in my written testimony, the LCV freeze needs to be complemented by a ceiling on maximum single trailer length in all 50 states. Our current infrastructure design has been badly outpaced by unforeseen increases in truck length. These increases have resulted in an "industry standard" of 53 feet in length in the U.S. The last state refusing to allow this increase from 48 to 53 feet in length, Rhode Island, conceded their use in July 1994.

Our estimates, based on the responses of knowledgeable transportation experts, is that the majority of our existing freeway ramps and interchanges cannot accommodate combinations with 53 foot long semi-trailers. In many instances, elevated cloverleaf ramps are not physically capable of negotiation by a 53-foot long semi-trailer rig. Similarly, the excessive offtracking of these and even longer (57, 59, and 60-foot) trailers create dangerous operating conditions because turns and sharp curves require these extra-long rigs to move into oncoming and adjacent lanes to execute the maneuver.

Furthermore, longer trucks will inevitably generate a demand for higher cargo weights which will be gained either by lifting the current federal ceilings on gross and axle weights, or by even more exploitative use of special permits for overweight trucks. Longer and heavier trucks will overwhelm the operational capabilities of the NHS, substantially increase the chances for serious truck crashes with passenger vehicles, and further decrease our infrastructure funding abilities. State and even local authorities would be forced to make extraordinarily expensive, fundamental design changes to facilities simply to accommodate very long trucks instead of improving highway conditions for other mobility and safely needs. Similarly, longer trucks will inevitably produce heavier trucks, and our funding shortfalls to meet even current bridge and pavement needs will be exaggerated because of the increase in truck-produced highway damage, especially on older non-Interstate portions of the NHS.

The only rational approach to controlling highway finance on the NHS, as well as crash involvement, is to control truck lengths and weights. However, it should be pointed out here that Congress mandated larger trucks on a network of highways far larger than the incipient NHS when it passed the truck provisions of the Surface Transportation Assistance Act of 1982. This Designated National Network (DNN)

consists of the Interstate system plus two-thirds of the arterials on the former U.S. Primary system—about 240,000 miles or more. Many of these roads are priority routes for heavy trucking, but will not be included on the NHS. Even with a cap on truck lengths and weights on the NHS, these routes will be available for longer, heavier rigs. This means that the cap on truck size and weight should be on the 1982 DNN, not just on the NHS.

NTS DEVELOPMENT BY DOT

Question. DOT is planning to submit a proposal in January 1995 for the development of a National Transportation System (NTS) to promote the implementation of an integrated, efficient intermodal transportation network. Are the issues of truck length and safety integral elements to consider in the development of NTS?

Answer. Absolutely. But, to date, the only elements addressed by the U.S. DOT have been funding issues and a general commitment to the NTS as a fulfillment of the ISTEA philosophy of intermodalism. No attention whatever has been paid to truck size and safety issues. Advocates is currently preparing a detailed response to the recent Federal Register inquiry by the Secretary's office on the issues that are generated by the concept of the NTS. Our main emphases will be the uniformity of design of highways for promoting better safety, and truck size and weight controls for safety and infrastructure preservation.

NAFTA AND LCV FREEZE

Question. In light of the passage of the North American Free Trade Agreement (NAFTA) and efforts to establish harmonious laws regarding truck lengths and weights, what factors should be considered to enhance economic potential without compromising safety? What are the implications of the LCV freeze for NAFTA?

Answer. The true costs of enhancing economic potential by increasing truck sizes and weights are measured by the considerable inflation of bridge and pavement damage generated by even slight increases in gross or axle weights, the increases in crash involvements and crash severity engendered by heavier, more unstable, bigger trucks, and the expanded discrepancy between infrastructure deterioration and user cost responsibilities for that deterioration. When these costs are quantified, productivity benefits for the trucking industry will be gained, as so often has been the case in the past, to the detriment of public safety, infrastructure preservation, and the highway trust fund.

As for the LCV freeze, it is clear that the economies of scale that would be generated for the trucking-industry by allowing trilateral movement on a virtually continent-wide priority commercial routing network for LCVs will be a major force in the negotiation arguments of representatives from all three countries. However, with the LCV freeze, but without a cap on single trailer lengths nor a reinvigoration of federal authority to control overweight permitting abuses, much of the economic efficiencies that the trucking industries of all three nations seek can be achieved through circumvention of the LCV freeze through the use of longer, heavier semi-trailers.

The key issue for trucking interests in NAFTA negotiations is not the LCV freeze, but the potential for the U.S. Congress to increase current federal weight limits on the Interstate. If significant increases were secured, state limits on non-Interstate routes would correspondingly be pressured for commensurate increases. Elevated weight limits on both Interstate and non-Interstate priority trucking routes would siphon off the intensity of interest in the trucking industry for thawing the LCV freeze. Although it is true that the movement of certain commodities by LCVs is still superior for cost and profit reasons over their movement by semi-trailer rigs, much of what can be gained by a state-by-state discretionary approach to the use of LCVs, such as that suggested by the GAO in its 1994 LCV report, would be accomplished by higher weights in bigger "eighteen wheelers."

ATTACHMENT A

TABLE 1—LCV Fatalities by Year

[Source: TIFA]

LCV indicator	1980–85	1986	1987	1988
Triple	8	4	0	2
Doubles greater than 80 ft., LCV state	18	7	7	

TABLE 1—LCV Fatalities by Year—Continued

[Source: TIFA]

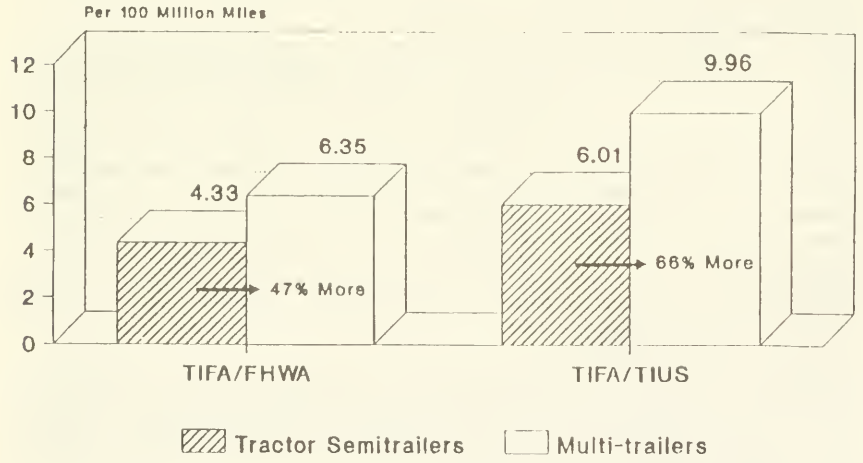
LCV indicator	1980–85	1986	1987	1988
Doubles with long trailers, LCV state	13	9	5	
Total LCV fatalities (conservative)	39	20	12	N/A
Total for 1980 to 1987 (8 years)	71			
Total triples 1980 to 1988 (9 years)	14			
Other likely LCVs:				
Truck with 2 full trailers, LCV state	10	0	1	
Doubles with medium trailers, LCV state	8	2	8	
	18	2	9	
Likely reported total LCV fatalities 1980 to 1987 (8 years)	100			

TABLE 2—Fatality Rates of Various Configurations (per 100 million miles of travel)

[Sources: TIFA and TIUS]

	1986	1987	Total
Single-Trailer Combinations	6.0	5.8	5.9
Multi-Trailer Combinations	9.7	8.7	9.1
All LCVs	14.3	8.2	11.2

TIFA HIGHWAY FATALITIES RATES (FHWA, TIUS VMT)



TIFA: Trucks Involved In Fatal Accidents
TIUS: Truck Inventory & Use Survey
FHWA: Federal Highway Administration

SOURCE: Roger Mingo, et al., "Accident Rates of Multi-Unit Combination Vehicles Derived from Large-Scale Databases," January 16, 1991.

ATTACHMENT B

[Transport Topics, Oct. 3, 1994]

A Decade of Useful Life Left in Old Wilson Bridge

Short term fixes can extend the life of the obsolete Woodrow Wilson Bridge by 10 years, about the window needed to design a replacement for the Interstate 95 span, according to an engineering study.

The bridge is an integral link in the east coast's main street, carrying 160,000 vehicles a day—far more than it was designed to handle 30 years ago—over the Potomac River south of Washington, DC.

It is also the object of controversy centered on whether to rehabilitate the existing structure or replace it with a larger span or a pair of tunnels.

A key question is whether to restrict tuck traffic on the Wilson Bridge.

The New York engineering firm Hardesty and Hanover led a study of the bridge's condition, finding it generally in "fair" shape but suffering excessive vibrations and deflections, particularly from heavy trucks.

Engineers said the existing six-lane bridge would last much longer if it were rebuilt and opened only to automobile traffic. At $52 million, this would be the cheapest solution.

If truck traffic cannot be rerouted, they said, the best alternative would be to replace the entire structure—at roughly four times the cost of renovation. Increasing capacity to 12 lanes could double costs again.

An average 17,000 trucks cross the Wilson Bridge daily. According to the study, today's trucks weigh a good deal more than those when the bridge was designed. Steel deck beams undergo more flexing, more often than was planned for, engineers said.

Bridge engineers now have a better understanding of the effects of repeated loadings from big trucks and would incorporate updated standards in a new design.

In the meantime, $10 million of short-term repairs to deck-supporting piers and steel members, plus new pavement, can extend the bridge's life by a decade under current traffic demands.

But that still leaves an "urgent" decision on what to do for the long run. It will take 10 years to study, design, and construct a permanent replacement.

QUESTION ASKED BY SENATOR HOLLINGS AND ANSWER THERETO BY MS. KONZ

Question. Please provide the committee information regarding any study that expressly ties the safety of a trailer to its length.

Answer. As cited in the written testimony submitted, longer trucks are more dangerous in that they are more likely to encroach onto another lane of traffic in turning, or "off-tracking." In studies completed by the University of Michigan Transportation Research Institute in 1986, (Sayers) and by the Ontario Ministry of Transportation In the same year (Mercer), "swing-out lane encroachment" describes the risks when the rear wheels of a trailer do not follow the front wheels of a tractor in making a turn. The driver then must allow the trailer to either leave the roadway on the inside of a curve, rolling over whatever is in its path, or must steer the trailer so that it encroaches into oncoming lanes of traffic. In the former scenario, bicyclists or pedestrians may be in the path of the trailer. In the latter scenario, the trailer may be in the path of an oncoming vehicle, and the driver of that vehicle may not anticipate the encroachment, and the driver of the trailer may not be able to stop or change its path. Further, a survey completed by the AASHTO indicate that only about half of the existing Interstate ramps could accommodate the off-tracking of a truck with a 48-foot trailer.

In the past year, CRASH has run its own computer simulations of the safety implications of longer trucks. The results of these computer simulations are being submitted with this response and are based upon the mathematics and geo-metrics set forth in the studies by Michael Savers and Billing and Mercer which I referenced in my posted response. And in June, CRASH researchers confirmed these computer results with road tests in Austin, Texas.

The problems trucks have with jackknifing, lane changes, and merging are all well documented. While CRASH knows of no studies documenting that these problems increase with length, I believe that this is because they would simply be stating the obvious. A longer jackknifed trailer will block more lanes and be a larger target for oncoming traffic. Even when driving normally on a crowded highway, longer trucks are more likely to cause accidents simply by changing lanes or merging into traffic. The amount of traffic flow displaced by a longer truck all too often results in accidents as other motorists are forced to slam on the brakes.

QUESTIONS ASKED BY SENATOR EXON AND ANSWERS THERETO BY MS. KONZ

CAR DRIVER'S CONCERNS

Question. What type of concerns, if any, do automobile drivers express regarding sharing the highways with single trailers and longer-combination vehicles (LCVs)?

Answer. When I was first approached about becoming involved in CRASH, I began to ask my family, friends, and colleagues about the mission of the organization and their opinion about the risks posed by tractor-trailers and LCV's. The response was overwhelming. EVERYONE had more than their share of stories about trucks on the highway, and the many times their safety was threatened by trucks. Even my father (who reportedly has been overheard as stating that I would be rich if I got paid for all the volunteer projects I worked on, and doesn't always understand my commitment to various projects) told me that I should do everything I could to improve truck safety and halt the use of longer-combination vehicles. That fact speaks very clearly of the attitudes toward longer trucks.

I began to realize that people not only were unaware of the limitations on the rate at which truck drivers can adjust position or speed of the truck, they were also unaware of the risks imposed, and the other issues that affected highway safety. I began to realize that people had minimized their fear to themselves, as I had, because of that lack of knowledge, and because without that knowledge, the fear seemed to be simply a childish and immature fear of big things. That sense of fear, I have learned, may be childlike, but it is well-founded. Passenger vehicles are very much at risk of being involved in a fatal crash with trucks.

As I have become more informed about the issues, I have shared that information with others. They respond with relief, and fervor. Relief that their simplistic fear, often minimized by the trucking industry, and fervor that action be taken to prevent the spread of highway trains that impose such a risk to travelers.

Two nationwide 1993 surveys by the polling firm Frederick/Schneiders have shown overwhelming public opinion against raising weight increases. Twenty-three percent of the public wanted to reduce truck lengths and *91 percent either wanted to reduce truck length or "keep length as it is."* Only six percent of the public favored increasing truck length. The same surveys indicate that 81 percent of people believe that longer trucks make driving conditions more difficult and 80 percent believe that they are less safe than the current fleet. The American public also rejects the claims that longer trucks would save them money, with 70 percent believing that any cost savings would NOT be passed on to them. And *75 percent of Americans support the Congress enacting a federal freeze on length limits.*

PERSONAL EXPERIENCE

Question. As a citizen and volunteer, describe for the Committee your personal experiences with tractor trailers and general highway safety, and why you feel so strongly that truck lengths should be frozen at current levels.

Answer. Eleven years ago, when I was still in the hospital, but just released from the Intensive Care Unit, following the single-vehicle van crash on icy roads in which I was a passenger. My phone began to ring immediately, as people had not been able to speak with me (I was hospitalized 300 miles away from my family, and 50 miles from the city where I had been living and going to school) since the injury had occurred. I only remember a few moments of those first days, but I remember one call from my older brother, who had been a truck driver for a few years, changing jobs a year before my injury. He was fighting tears during that call, telling me how sorry he was that this had happened to me, and not to him. As a truck driver, he had been involved in a few accidents, one involving a jack-knife of his truck on ice, which is more likely to occur with longer trucks. He had walked away from that accident, and the others. He, like other truck drivers I have met (including one who was involved in a fatal crash with a passenger vehicle), know that regardless of the cause of the crash, they most likely will survive, because of the nature of the vehicle they drive. It is a heavy burden they carry throughout their lives.

I have spent some talking with my brother about truck safety, and the lack of knowledge that other drivers have regarding the truck-driver's ability to change speeds, move the vehicle quickly, etc. I witnessed these limitations around the same time: I was driving back from Mayo Clinic-Rochester, for my own medical treatment for the personal injury I had incurred. I had spent alot of time on that trip evaluating truck traffic and thinking about the request to take on a leadership role in CRASH. A woman driving a car almost identical to mine in the left lane was cut off by the truck just ahead of me, that had changed lanes and not left enough space. The driver of that car had to drive into the median of the Interstate to avoid being hit, and fortunately was able to keep the car from rolling over. I went home and called the CRASH office to communicate my decision to take on the task they had asked of me.

DATA COLLECTION

Question. How do you quantify and use the information you gather as a volunteer for CRASH.

Answer. The interview information I have collected in my role with CRASH has been described in the response to the first question from the Senator.

The American Automobile Association (AAA) has also done several surveys over the past decade. Nationally, 89 percent of AAA members were "strongly opposed" to increasing truck weights in a 988 survey. The next year 92 percent of the members of AAA/Potomac (DC, Northern Virginia, and suburban Maryland) answered "no" to the simple question "do you favor allowing truck lengths to be increased?"

NATIONAL HIGHWAY SYSTEM IMPLEMENTATION

Question. The Department of Transportation (DOT) has unveiled its proposal for the National Highway System (NHS) which will incorporate approximately 160,000 miles of interstate highways, state highways, and county roads. What role, if any should truck lengths play In implementing this new NHS? Should the current freeze on truck lengths be extended to include the NHS?

Answer. The available information clearly indicates that longer trucks are more dangerous and are more likely to be involved in traffic crashes. Also, the vast majority of citizens that I have spoken with regarding this issue would prefer that limits be placed on longer-combination vehicles and the length of truck-trailers. And, since length is related to weight of trucks, and heavier trucks are also more likely to be Involved in several different kinds of accidents, placing a freeze on she lenqth of trucks using the NHS will potentially save lives and reduce accidents on that system. And the current freeze on longer-combination vehicles should also be extended to the NHS, for the same reasons, and for the same purpose.

I would also refer the Senator to a book written by a fellow Nebraskan, "The Silent Depression," by Wallace Peterson, Ph.D. (1994). Dr. Peterson addresses the economic benefits of such an intermodal transportation system in the chapter on "Investing In America" and presents a clear explanation of the benefits and issues involved in developing such a system.

NTS DEVELOPMENT BY DOT

Question. DOT is planning to submit a proposal in January, 1995 for the development of a National Transportation System (NTS) to promote the implementation of an integrated, efficient intermodal transportation network. Are the issues of truck length and safety integral elements to consider in the development of NTS?

Answer. Certainly the issue of truck length is integral to the success of an intermodal transportation system, as longer trucks may not be able to be accommodated by the railroad and the overall system being developed. Also, as stated previously and as described in the written testimony submitted to the Surface Transportation Subcommittee, truck length is a key issue to improving the safety of our transportation system.

NAFTA AND LCV FREEZE

Question. In light of the passage of the North American Free Trade Agreement (NAFTA) and efforts to establish harmonious laws regarding truck lengths and weights, what factors should be considered to enhance economic potential without compromising safety? What are the implications of the LCV freeze for NAFTA?

Answer. The Senate Resolution supported by Senator Exon specifically stated that truck safety standards should not be compromised in the effort to increase trade between the U.S., Canada, and Mexico. As such, current truck length freezes on longer-combination vehicles should be maintained and applied to vehicles from all three countries traveling within the United States, especially since Mexico allows triple trailers, and Canada allows them in certain areas. And since both countries also allow significantly heavier trucks, they would also simultaneously need to use longer trucks to accommodate the increased weight. With weight limits in Mexico at 170,000 pounds, and Canadian limits at 137,000 pounds, these trucks could be as long as 120 feet! And I cannot imagine that anyone could agree that any increase in trade and subsequent improvement in economic conditions due to these kinds of compromises in safety Is worth even one life. If necessary a comparison could be made of the projected economic benefits and the costs of losing even one life because of longer trucks, including the loss of income, the emergency services and/or funeral expenses from such a crash, or the use of entitlement funds for the crash survivor or for 4ffihe surviving family members of anyone killed in such a crash. I suspect the numbers will speak for themselves.

QUESTIONS ASKED BY SENATOR HOLLINGS AND ANSWERS THERETO BY MR. DONOHUE

LONGER COMBINATION VEHICLES

Question. Will an increase in trailer lengths put pressure on motor carriers to replace their fleets earlier than they might do otherwise?

Answer. We do not expect any sweeping increases in the length of single trailers. If there were major increases, we do not believe the changes will cause motor carriers to replace their fleets earlier.

The reason is that every one of the 48 contiguous states currently allows the operation of 53 foot single trailers. However, most states that increased the length limit required the trailer axles to be moved forward so that the 53 foot trailer turns in the same radius as a 48 foot trailer. A longer trailer with this same axle requirement will be difficult to load with more weight because adding weight to the back would lighten the front of the trailer and hurt the safety performance of the vehicle.

However, buying a longer trailer at current weight restrictions actually restricts the types of cargo that can be carried by the motor carrier. For example, a 57 foot trailer would have roughly 7.5 percent more cargo space than a 53 foot trailer. That means that the type of cargo that completely fills a 57 foot trailer must be at least 7.5 percent less dense than the cargo that fills a 53 foot trailer. This is why longer trailers have very limited applications and are used for such cargo as styrofoam insulation, empty cans, and snack foods.

The other important factor for a motor carrier is that rates paid to transport directly from shipper to receiver are based on mileage and not volume or weight. This means that the motor carrier gets paid the same amount for moving a 53 foot trailer as a 57 foot trailer. There is not direct economic incentive for a motor carrier to increase truck length.

There are no federal restrictions on states increasing the length of single trailers and eleven states currently allow trailer length greater than 53 feet on the National Truck Network. Yet, of these eleven, only four states, (Alabama, Florida, Kansas, and Wyoming) have increased trailer length beyond 53 feet since 1982.

Question. Is there any increase or decrease in the safety of trailers related to characteristics of the load being carried by the trailer?

Answer. We are not aware of any studies that correlate the safety performance of trailers versus load characteristics. There are four elements involving cargo loading, however, that may affect trailer stability.

The first element is the center of mass of the load within the trailer. The lower the center of mass, the more stable the trailer. The trailer can be built to lower the center of mass for a given load of cargo so that the trailer floor is closer to the ground or if the trailer length is longer. The actual load distribution on the trailer also affects stability. Motor carriers load cargo so that the densest cargo is closest to the ground and to the front of the trailer.

The second element is the weight of the cargo relative to the braking capability of the truck. The federal bridge formula requires more axles as weight increases and requires axles to be spaced to distribute the load. Truck brakes are required on all axles of the vehicle. The more cargo weight carried by the trailer, the more axles required and therefore, the more brakes applied.

The third element only involves combinations that have more than one trailer. Carrier practice and some state laws require the heaviest trailers to be the closest to the tractor. This arrangement improves tracking and braking stability.

The fourth element involves tank trucks transporting liquids. Cargo tanks that are partially filled can generate liquid surge that can affect vehicle stability. Industry practices to reduce the likelihood of product surge during transportation include keeping the cargo tank filled to capacity, putting compartments or baffles inside the tank, using low center-of-gravity or small bore tanks, and specialized driver training.

Question. Many claim that large trucks are more likely to be involved in a fatal multi-vehicle crash than passenger vehicles. Please comment on this statement for the committee.

Answer. The claim is not substantiated by government studies. According to DOT data, heavy trucks account for 7 percent of miles traveled and are involved in 8 percent of the fatal accidents.[1] These numbers do not indicate over-involvement of trucks in fatal accidents.

In an accident involving a car and a truck, individuals in the car are more likely to be injured than the individuals in the truck. This is due to the laws of physics.

[1] Fatal Accident Reporting System 1991, National Highway Traffic Safety Administration, March 1993, (DOT HS 807 954), tables 6, 7, 8 and 9.

If a smaller and lighter object is struck by a larger and heavier object, the smaller, lighter object will generally sustain more damage.

Differences in weight are not just a factor in car and truck accidents. Based on ten years of fatal accident data from NHTSA's Fatal Accident Reporting System (FARS), in over 90 percent of the fatal collisions involving a car and a motorcycle, the driver of the motorcycle will be fatally injured and the auto driver will not be. It would be absurd to most people to argue that the solution to the problem should be to freeze or reduce the weight of cars.

The solution to the problem is to improve the safety of the vehicle, driver and roadway. This is why the trucking industry has successfully supported the creation of a single, classified license system for truck drivers, increased roadside safety inspections, elimination of the safety exemption in commercial zones, and bans on radar detectors in commercial vehicles.

These efforts have borne fruit. Over the last ten years (1983-1993) large truck fatalities[2] have decreased a total of 13.5 percent, and tractor-trailer fatalities have decreased 22 percent. These improvements have been achieved while truck vehicle miles traveled has increased 43 percent. (See following chart.)

Fatal Truck Crashes—1983 to 1993

[Fatality Facts 1994—Insurance Institute for Highway Safety]

Year	Tractor trailers	Single unit	Unknown	Total
1983	4,238	768	464	5,403
1984	4,466	773	391	5,546
1985	4,513	831	359	5,610
1986	4,355	837	347	5,465
1987	4,254	873	407	5,469
1988	4,447	824	369	5,567
1989	4,225	848	351	5,360
1990	4,054	922	254	5,172
1991	3,418	953	437	4,728
1992	3,232	1,040	200	4,413
1993	3,469	1,187	170	4,759

(Note: Deaths in crashes involving more than 1 truck type are included more than once, except in totals.)

It is important to note that the recent General Accounting Office study on longer combination vehicles does not corroborate the claims of those who say that large trucks are unsafe. According to GAO, "available data do not show that LCVs have a safety problem in areas of low traffic where they currently operate."[3] The statement is important because GAO has been studying the issue for over two and a half years. If there were a problem, it is inconceivable that neither GAO nor any state, university, or interest group has been able to quantify it.

Moreover, triples have an excellent safety record in the states where they operate. According to the Oregon Public Utility Commission,[4] "(t)riple trailer combinations have a lower rate of truck-at-fault accidents than other trucks." The PUC found that triples were three to four times safer than other types of trucks.

Question. Please provide the committee with any figures ATA may have for any given year relative to the percentage of fatal truck crashes which are found to have human factors as a cause.

Answer. The most recent data is from the NHTSA Report: Traffic Safety Facts 1993—Large Trucks. According to NHTSA,

> (f)or 42 percent of the drivers of large trucks involved in fatal crashes in 1993, police reported one or more errors or other factors related to the driver's behavior associated with the crash.

This statistic includes all truck accidents involving fatalities, including single vehicle truck accidents. When it focused only on truck accidents involving a car, NHTSA found that

> (i)n more than two-thirds (68 percent) of the two-vehicle fatal crashes involving a large truck and another type of vehicle, police reported one or more (human] factors for the other driver and none for the truck driver.

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[2] NHTSA defines a "large truck" as one with a gross vehicle weight rating greater than 10,000 pounds or more.

[3] "Longer Combination Trucks: Potential Infrastructure Impacts, Productivity Benefits, and Safety Concerns", General Accounting Office, August 9, 1994, GAO/RECD-94-106, page 6.

[4] PUC News, Oregon Public Utility Commission, March 2, 1994, Release 94-08.

This means that, in two-thirds of crashes involving a car and truck, the truck driver had *done nothing wrong* and the error had been committed by the car driver. The study does not conclude that the truck driver made an error in all of the remaining accidents. Rather, many of those accidents involved human factor problems by both drivers or neither driver.

ATA has been working to address this problem by conducting educational programs around the country on how trucks and cars can share the road. We identify traffic locations that are known problem areas and then describe driving techniques that trucks and cars can use to avoid crashes.

QUESTIONS ASKED BY SENATOR EXON AND ANSWERS THERETO BY MR. DONOHUE

LONGER COMBINATION VEHICLE STABILITY

Question. Please provide the committee with the ATA response to the GAO report and the Advocates for Highway Safety and Auto Safety (Advocates) claims which contend that LCVs sway more and require longer distances to stop than single trailers, and therefore could impose a greater safety risk on congested highways.

Answer. The GAO report does not conclude that "LCVs sway more and require longer distances to stop than single trailers." Instead, GAO's extensive study refutes the arguments made by Advocates. GAO said:

> There has been some disagreement about LCVs stability during braking and the distance required to stop. Under controlled test conditions with experienced drivers, recommended equipment, properly adjusted brakes, and properly distributed loads, LCVs have been shown to stop in fairly short distances—*comparable to single-trailer trucks.*[5] (emphasis added)

The issue then is not the underlying LCV, but how it is maintained and operated. Sway is influenced by many things, including vehicle configuration. Turning inputs are amplified as they pass through a system. Knowing such things occur, equipment is designed to help control adverse side effects and drivers are trained in appropriate operating procedures.

Vehicle sway is regulated by the Federal Highway Administration.[6] This regulation requires that all combination vehicles be constructed such that any towed vehicle does not deviate more than three inches to either side of the path of the vehicle that tows it. Therefore, all vehicles are designed and must be maintained and driven such that they do not produce dangerous levels of sway.

Sway can be reduced by going to longer trailers and by eliminating hitch points. Trucking critics typically dwell on elimination of hitch points in their arguments and ignore the safety benefits of additional length.

Eliminating hitch points can be counter-productive. It requires a dolly technology that can only be used with short trailers, because the vehicle still needs to be able to turn. Further, such dollies themselves can cause safety problems including total vehicle rollover and the requirement for greater maneuvering space. Therefore, one must be quite certain a problem exists before one attempts to correct it. The safety record of LCVs indicates no safety problem in the way they are operated.

The Saskatchewan Highways and Transportation Department, in its report on "The Safety Experience of Large Trucks in Saskatchewan", noted that:

> In general, it was found that vehicle type and configuration played a much less important role in the overall accident experience of large trucks than generally perceived by the public and transportation professionals. Safety, as it relates to large trucks, clearly cannot be equated to vehicle type and/or configuration. There are numerous other parameters like road, environmental, and driver that appear to play much more important roles relative to safety than the vehicle in general or vehicle type or configuration in particular. The area of driver training probably provides the most cost effective and productive target for truck safety policies and programs. This is not to suggest that complacency is appropriate with respect to the other major parameters (i.e. vehicle, road and environment).
>
> The major contributing factors to accidents involving large trucks in Saskatchewan are human conditions (32 percent), i.e. driver inattention, driver distraction, had been drinking, driver inexperience, etc.; and environmental factors (40 percent), i.e. animal action, slippery surface, loose gravel, obstructed view, etc. Only about 35 percent of all accidents involving large trucks are in any way related to vehicle type, vehicle configuration or vehicle stability. Further, of

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[5] Ibid., page 2.

[6] Federal Motor Carrier Safety Regulation (FMCSR) 49 CFR 393.70(a) Tracking.

those accidents where vehicle type, configuration or stability may be an issue, it is not clear that any particular type or configuration is always better than others.

Truck brakes have been designed to provide both panic stop capability and handling control at the same time. They provide such capability and the ability to make normal stops, all with a high degree of reliability. As with every other system of the truck, changes and improvements are continually being made in the truck braking system.

Each time an axle is added to a truck, brakes are added as the federal safety rules[7] requires brakes on all wheels. There are two wheels (therefore, two brakes) on every axle. LCVs have more axles, hence, added brake capability to handle their increased cargo capacity. Adding an additional trailer does not slow the brake application time for the other vehicles in the combination since towing trailers must meet Federal Motor Vehicle Safety Standard 121 which establishes minimum brake performance.

As evidenced by the millions of stops made each day, trucks, including LCVs, incorporate brake systems which have evolved to the point that they work so well in traffic with cars that they are typically taken for granted. Except for a full panic stop, car and truck braking is completely compatible. In the case of panic stops, the greater sight distances enjoyed by truck drivers tend to result in an equalization of truck and car performance.

Question. In light of the concerns of some people regarding the stability and maneuverability of LCVs, what is ATA's position regarding the reasonableness of the current freeze on LCVs as prescribed in the Intermodal Surface Transportation Efficiency Act? Are there particular roads on which LCVs should not be permitted?

Answer. The LCV freeze created by ISTEA is illogical. It froze the size and weight of LCVs that were operating on June 1, 1991, without regard to whether those trucks could be operated safely on additional highways. If a truck of a certain size and weight can operate safely and efficiently in one state, it should be safe in another jurisdiction that has similar highways, traffic, geography, population density and no grandfather rights.

For example, a motor carrier in southeastern Wyoming hauls sugar beets from fields located in Wyoming and Nebraska. Two separate fleets of trailers must be maintained to make the movement because of the freeze. This is because Nebraska allows a second trailer that is only 20 feet long, eight feet shorter than what the freeze allows in Wyoming. Drivers spend a great deal of time switching trailers in situations involving a field that lies on both sides of the state line. While both fields belong to the same agricultural producer, if the carrier enters the highway in Nebraska, one vehicle configuration is allowed.

If the vehicle enters the highway in Wyoming, another configuration must be used. There is nothing logical about this and it costs a shipper $.05 to $.52 per ton more to transport the beets in Nebraska. These types of inefficiencies are putting small carriers out of business and are adding cost to shippers and consumers.

There are about 4 million miles of highways in the United States. LCVs operate on only 54,746 miles of roads, according to the GAO.[8] There are approximately 45,000 miles of interstate highways and toll roads; LCVs currently operate on only 17,464 of these miles. There are 166,648 miles of non-interstate, federal aid primary designated national truck network miles. LCVs currently operate on only 37,282 miles of these highways.

Many roads are not suitable for LCV operations, either because of the number of lanes, lane width, lack of shoulders, turning radius, grade, other geometric considerations and/or traffic congestion.

However, many roads not currently open to LCVs are quite suitable and safe for them. Rather than freezing the options of a state, states should be allowed to permit operations of more productive and efficient vehicles on roads where they can operate safely.

TRUCK LENGTH FREEZE

Question. ATA submitted testimony stating that the current Federal freeze on LCVs is "illogical" because of non-uniformity in truck length limits. What changes would ATA suggest, and why?

Answer. We suggest that the freeze be removed and states be allowed to change LCV regulations.

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[7] FMCSR 49 CFR 393.42.

[8] "Truck Safety, The Safety of Longer Combination Vehicles is Unknown", United States General Accounting Office, GAO/RCED-92-66, March 11, 1992.

The freeze should be replaced with the approach suggested by a panel of experts in Transportation Research Board Special Report No. 225, "Truck Weight Limits: Issues and Options."[9] That report recommends that states regulate the weight of trucks over 80,000 pounds by establishing a special permit program with designated routes, maximum weights, new fee structures and safety restrictions.

In the study, TRB determined that the cost to the nation of rolling back the weight to 80,000 pounds would be $7.76 billion annually. Because more trucks would be placed on the highways, the rollback would result in 350 more fatalities per year and 8,360 more injuries per year.

TRB's recommendations for special permits is consistent with the suggestions made by the General Accounting Office in its report, "Longer Combination Trucks Potential Infrastructure Impacts, Productivity Benefits, and Safety Concerns."[10] GAO said that if the Congress wishes to allow the expanded use of LCVs, it should authorize the Secretary of Transportation to consider exceptions to the freeze on LCV expansion only if requested by states and accompanied by the following:

- A state analysis of each proposed route to demonstrate its suitability in terms of the density of traffic, condition of bridges, and adequacy of interchanges. States should determine whether additional infrastructure cost would be generated and how these costs would be recovered.
- A certification that the state will enforce qualification standards for LCV drivers, ensure adequate inspection of LCV equipment, and monitor the experience of LCVs to identify safety problems or negligent carriers.

As stated above, ATA believes that the LCV freeze is illogical. Moreover, we believe that it is bad public policy for Congress to dictate the size of vehicles. The crash of a large airplane is likely to kill more people than a small airplane, but Congress does not limit airplane size. A long train is more likely to block emergency vehicles at grade crossings, but Congress does not regulate train length.

RELATIONSHIP OF TRUCK LENGTH LIMITS TO WEIGHT LIMITS

Question. Mr. Donaldson, on behalf of Advocates, submitted testimony which asserted that increases in truck length are followed by requests for increases in weight limits, and thereby increases in accidents and road repair costs are experienced. What is ATA's view of this trend?

Answer. The experience of the last decade proves Mr. Donaldson wrong. In 1982, twenty four states allowed trailers that were 53 feet long or longer to operate. Now every one of the contiguous 48 states allow 53 foot single trailers. However, contrary to the assertion made by Mr. Donaldson, during this twelve year period only one state (Arkansas) increased the gross weight limits for tractor semi-trailers.

The absence of weight increases was not because Congress enacted a freeze. There is no Federal law or regulation that would have limited the ability of these states to increase the gross weight for single-trailers operating on most of the roads in the state. This is because the federal weight limits of 23 USC 127 apply only to the limited number of Interstate System highways in the state and the 1991 LCV freeze applies only to trucks with multiple trailers.

However, we need to consider the impact of accidents and road repair costs if Congress were to roll back truck size and weight and failed to provide for a growing economy in the future. As described in the answer to question number 3, above, the TRB calculated that the cost to the economy of rolling back weights would be $7.76 billion annually and result in more 350 deaths per year and 8,360 more injuries. That is because the same amount of freight needs to move, regardless of the size of the vehicle. Smaller vehicles mean more trucks and more vehicles causing wear and tear.

Finally, we need to keep our options open for the future. Economic consultants predict that by the year 2000, even with a conservative economic growth of 2.8 percent per year, and assuming that intermodal freight traffic on railroads will double, to meet the demands for jobs and a growing economy:

- trucks will have to haul 30 percent more freight,
- trucks will have to drive 31 percent more miles, and
- we will have to put 14 percent more trucks on the road.

I would like to again emphasize the need to keep all of our options open to meet these needs, as long as we do not compromise safety.

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[9] "Truck Weight Limits: Issues and Options" Special Report No. 225, (Washington, D.C.: Transportation Research Board, 1990), 158, 231.

[10] "Longer Combination Trucks Potential Infrastructure Impacts, Productivity Benefits, and Safety Concerns", United States General Accounting Office, GAO/RCED-94-106, August 9, 1994.

NATIONAL HIGHWAY SYSTEM IMPLEMENTATION

Question. The Department of Transportation (DOT) has unveiled its proposal for the NHS which will incorporate approximately 160,000 miles of interstate highway, State highways, and county roads. What role, if any, should trucks lengths play in implementing this new NHS? Should the current freeze on truck lengths be extended to include the NHS?

Answer. Truck lengths should not be frozen as part of the NHS approval. The NHS concept was a central part of the 1991 ISTEA legislation. ISTEA was revolutionary in its efforts to provide increased flexibility to state and local governments to meet transportation needs. One of the major exceptions to this flexibility is the imposition on the states of a national freeze on LCVs.

There was not a comprehensive safety analysis prior to ISTEA justifying the need for a freeze. GAO has now completed over two years of studies and three reports called for by ISTEA and found no objective safety case for a freeze.

As states implement the NHS, they should ensure that roads can safely carry the trucks that can legally operate on them. Therefore, unless FHWA's proposed truck size and weight study shows different results, the existing freeze on LCVs should be ended and no federal freeze should be put on the length of single trailers.

NTS DEVELOPMENT BY DOT

Question. DOT is planning to submit a proposal in January 1995 for the development of a National Transportation System (NTS) to promote the implementation of an integrated, efficient intermodal transportation network. Are the issues of truck length and safety integral elements to consider in the development of the NTS?

Answer. Only if objective studies of accident data show there is a safety problem with a particular configuration should length be considered in the development of the NTS. We should not begin the inquiry by freezing a particular configuration. If the vehicle is safe, states should be able to allow it to operate wherever it can operate safely.

It is important not to lose sight of the big picture. The NTS is not about trucking or trucks. It is about jobs, the economy, trade and this country's ability to compete in a world marketplace. One of the criticisms of LCV operations is that they reduce a shipper's business with the railroads.

One significant example of how this is not the case is the experience of Coastal Chem, Inc., a company based in Wyoming. In 1985 Coastal Chem shipped 51,915 tons of product by rail and 242,423 tons by truck (none by LCV).

In 1986, when Wyoming began allowing LCV operations, Coastal Chem moved 119,490 tons by rail, 53,596 tons by LCV and 261,285 tons by standard truck.

In 1993, they moved 211,200 tons by rail, 281,172 tons by LCV and 347,540 tons by standard truck.

The NTS will improve our ability to move freight in a seamless intermodal environment. Freezes and limitations applied to an NTS will only hamper the NTS goals and the nation's ability to compete. We should be looking at creating a NTS concept that improves our quality of life by promoting a seamless transportation system. We should go in without preconceived ideas and illogical freezes.

NAFTA AND THE LCV FREEZE

Question. In light of the passage of the North American Free Trade Agreement (NAFTA) and efforts to establish harmonious laws regarding truck length and weights, what factors should be considered to enhance economic potential without compromising safety? What are the implications of the LCV freeze for NAFTA?

Answer. To enhance the economic potential of the United States without compromising safety, we should look at the relevant transportation experience of each country. Canada and Mexico each have vehicles that cannot operate legally everywhere in this country. Not all of our vehicles can operate legally in Mexico and Canada. The efforts toward harmonization should look analytically at those vehicle characteristics that promote trade and jobs without compromising safety. Once a vehicle envelope is determined, the vehicle should be allowed to operate under state special permits on given routes, with appropriate operating restrictions, and a fair fee schedule.

A unilateral freeze on truck lengths by the United States invites a freeze by other countries on their vehicle configurations. This would not lead to harmonization, but rather to a lowest common denominator approach that would result in international trade that was less efficient than transportation within any individual country.

The implications of continuing an LCV freeze is that it will form a barrier to north/south trade. The 1991 LCV freeze locked in state decisions that were made

before NAFTA was adopted. The LCV freeze forces states to plan for tomorrow's transportation needs with the standards of yesterday's transportation system.

This is especially troublesome because major railroad corridors travel east/west, not north/south. With approximately 80 percent of trade between the United States and Mexico moving by truck, there is a need for efficient truck transportation to promote north/south trade.

LETTER FROM WARREN E. HOEMANN, VICE PRESIDENT—GOVERNMENT RELATIONS, YELLOW CORP.

SEPTEMBER 9, 1994.

The Honorable JAMES EXON,
U.S. Senate,
Washington, DC 20510

DEAR SENATOR EXON: Please consider the following information in preparation for the hearing of the Senate Surface Transportation Subcommittee on truck safety for Wednesday, September 14.

Yellow Corporation is a transportation holding company whose principal subsidiary is Yellow Freight System (Yellow Freight). Yellow Freight is a nationwide less-than-truckload (LTL) motor carrier with a significant operation of LCVs in the form of triple trailer combinations. As the focus of the Subcommittee hearing is on the recent GAO report on Longer Combination Trucks, the experience of Yellow Freight should provide a useful backdrop for your discussions.

Yellow Freight operates triples over 50 million miles annually on designated roads and turnpikes in 14 States. These operations save the company approximately $40.7 million in operating costs and capital expenditures, savings which are passed on to our customers in today's highly-competitive transportation industry. Yellow Freight's triples operations also produce savings in two other areas: fuel and miles of operation. The 3,052,000 gallons of fuel saved annually not only adds to the cost savings but reduces emissions. By operating triples, Yellow Freight also saves 25.4 million miles of operation that would otherwise have been conducted to move the same amount of freight. That means fewer trucks on the road and 25.4 million miles reduced accident exposure.

Most important, at Yellow Freight the triples operations themselves have proven safer than our overall fleet operations. As shown on the attachment, Yellow Freight has averaged only one reportable accident for every 6.25 million miles of triples operation, compared to our own overall fleet average of one accident for every 1.7 million miles. As the GAO suggests, this safety is the result of triples being operated selectively —selected routes, selected (i.e., trained) drivers and selected equipment. By putting the right vehicle on the right road with the right driver, a process that can be accomplished under state-issued special permits, productivity can be increased, costs saved and safety maintained or improved. The latter point is most clearly demonstrated by the documented experience of Oregon, Idaho, Nevada and Utah with triples, as shown on their respective attachments.

Yellow believes that the GAO report is the most even-handed treatment of LCVs we have seen. In particular, GAO correctly recognizes that selected routes for triples can be of immediate benefit to LTL carriers by connecting existing terminal facilities. In this regard, GAO notes the distinct operational characteristics and needs of different LCV types. Triples are shown not to be rail-competitive; they reduce pavement impacts without raising bridge concerns; and they handle commercial highway interchanges better than the typical 48- or 53-foot tractor-semitrailers. All of these factors argue that a case-by-case approach to additional LCV routes, as proposed by GAO, is clearly workable for triples.

At such time as Congress may choose to readdress the question of LCVs, Yellow Freight believes that the GAO has outlined a sensible approach that Congress should consider. Yellow Freight would be glad then to share our ideas and experience on making a selective route approval system work.

Sincerely,

WARREN E. HOEMANN.

YELLOW FREIGHT SYSTEM—ANNUAL OPERATION WITH TRIPLES

Miles Operated: 50 million; *Safety Record:* 1 reportable accident every 6.25 million miles; *By Comparison:* Our overall fleet averaged 1 accident every 1.70 million miles—the U.S. trucking industry as a whole averages 1 reportable accident every

909,000 miles; *Savings:* 3,052,000 gallons of fuel annually; 25.4 million miles of operation; Approx. $40.7 million in operating and capital costs.

TRIPLES SHOW LOW ACCIDENT RATE IN OREGON

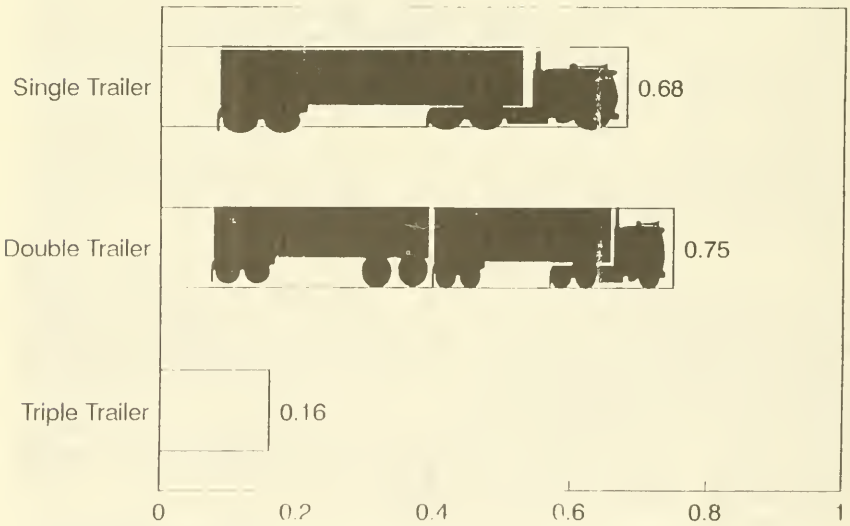
Triple trailer combinations have a lower rate of truck-at-fault accidents than other trucks, according to statistics collected by the Oregon Public Utility Commission.

According to data required to be provided by triples operators, triple combinations traveled 24 million miles on Oregon highways in 1993. This, coupled with data from accident reports, shows that there were .17 preventable triples accidents per million miles in 1993. Considering the preventable accident rate for all trucks was .52 per million miles in 1992, triples are earning a good safety record in Oregon. (Following a 1993 Oregon Department of Transportation rule, triple operators are required to report their Oregon mileage to the PUC.)

Out of 1,316 truck accident reports received by the PUC in 1993, 8 of those involved triple trailer combinations. Four of the eight accidents were considered preventable, meaning the truck or truckdriver was at fault. The remaining four were due to actions of automobiles.

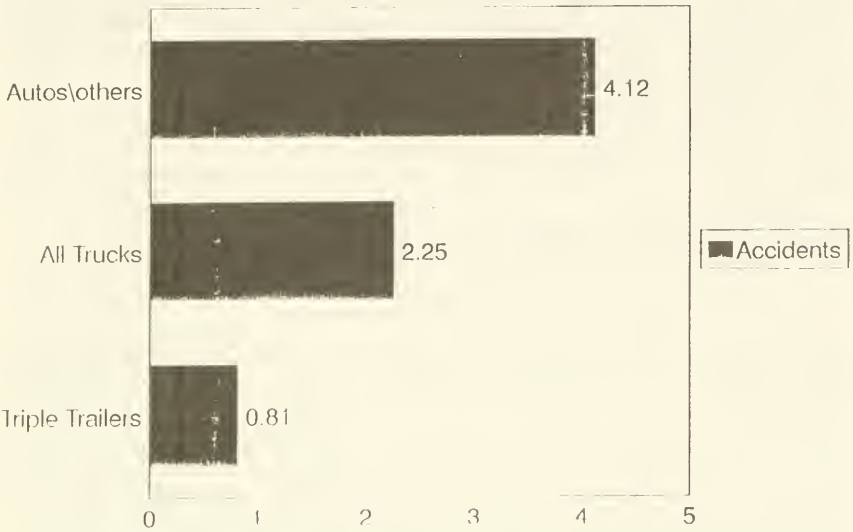
The accident statistics on triples confirm the safety record the PUC has compiled from its safety inspections. From 1991 through 1993, State safety inspectors conducted 239 inspections on triples. The average vehicle out-of-service rate was 4.88 percent of vehicles inspected, compared to 20.39 percent for all other vehicles inspected. Safety inspectors place a vehicle out-of-service if, during an inspection, a serious mechanical defect or driver problem is found. Violations that may place a vehicle out-of-service include brakes that are out of adjustment or inoperative and other mechanical problems, or driver's hours-of-service violations, or licensing problems.

IDAHO TRUCK ACCIDENTS BY CONFIGURATION



Accident rate per million miles traveled (1991). Source: Idaho Transportation Department.

NEVADA TRUCK ACCIDENTS BY CONFIGURATION



Accident rate per million miles traveled (1988–91). Source: Nevada Department of Transportation.

LETTER FROM EUGENE H. FINDLAY, EXECUTIVE DIRECTOR, UTAH DEPARTMENT OF TRANSPORTATION

MAY 16, 1991.

The Honorable QUENTIN BURDICK,
U.S. Senate,
Washington, DC 20510–6175

DEAR SENATOR BURDICK: It was gratifying to me to participate in your hearings of the Senate Environment and Public Works Committee earlier this week. It was reassuring to again see our legislative process in action.

I was deeply disturbed, however, to witness some gross errors in the testimony of Joan Claybrook, representing CRASH, in quoting the statistical history of triple trailer combinations in my own State of Utah.

The Utah Department of Transportation is neither promoting nor discouraging triple trailer operations in Utah, but triples have been operated successfully under the permit program for approximately 17 years and have a very admirable record of safety, which should not be distorted.

As I recall, the testimony of Ms. Claybrook indicated that triple trailers in Utah were experiencing three times as many accidents as regular trucks. Actually, the reverse is true. Triple trailers have less than one-third as many accidents as regular trucks!

During the past few months we have furnished CRASH and several of the railroads, including the AAR, a great deal of statistical and regulatory information concerning the operation of triple trailers. We are glad to furnish information, but feel the facts should not be distorted and that the record should be corrected.

Thanks for the leadership you are providing on these many issues.

Sincerely,

EUGENE H. FINDLAY, CPA,
Executive Director.

PREPARED STATEMENT OF EDWIN L. HARPER, PRESIDENT, ASSOCIATION OF AMERICAN RAILROADS

My name is Edwin L. Harper. I am President and Chief Executive Officer of the Association of American Railroads (AAR), representing the principal freight rail-

roads of the United States, Canada and Mexico. AAR members employ 89 percent of rail employees and account for 96 percent of rail annual ton-miles and 91 percent of annual rail revenues. I appreciate the opportunity to present AAR's views on truck length issues on the National Highway System (NHS). Because the two issues are linked, the testimony will address truck weight as well as size.

AAR supports a freeze on truck sizes and weights on the NHS.

Three basic principles are important in considering a truck size and weight freeze.

- A freeze is an essential step toward fully realizing the 1991 ISTEA's vision of a truly intermodal national transportation system.
- The freeze is needed to protect the federal investment in the National Highway System (NHS).
- Congress needs to act quickly to establish federal oversight of truck size and weight limits because the states' control of these limits is eroding.

In the remainder of my testimony, let me examine each of these three points.

1. A freeze is an essential step toward fully realizing the 1991 ISTEA's vision of a truly intermodal national transportation system

Beginning with the very first word of the title, the 1991 ISTEA set a new course emphasizing intermodal transportation policies and solutions. ISTEA recognized that America needs to move beyond unbalanced reliance on any single transportation mode.

Freight railroads are a crucial element of a strong intermodal transportation system. Because America is so big, railroad technology's efficiency in carrying freight over very long distances is essential in order to integrate our national economy and to keep it internationally competitive. Moreover, the redundancy created by the parallel rail and highway system creates a national transportation "safety net". This is vividly illustrated by the way railroads kept freight moving during the recent Los Angeles earthquake, last year's Midwest floods, and this spring's Teamsters strike.

Greater reliance on rail intermodal service will produce large social benefits: railroads are three times as safe, up to ten times less polluting, and three times as energy efficient as over-the-road transportation. Freight carried by rail is, by definition, freight that is not contributing to highway congestion, or to wear and tear on the highways.

ISTEA's freeze on further expansion of longer combination vehicle (LCV) operations took a giant step toward realizing the enormous potential of rail intermodal traffic. Of course, Congress was not primarily concerned about railroads when it enacted the LCV freeze. Instead, the freeze was a response to other highway users' urgent demands that they be shielded from the expansion of LCVs.

Since the LCV freeze, the trend towards intermodal freight transportation has accelerated tremendously. The handful of pre-1991 truck/rail intermodal joint ventures has multiplied and grown, with more still to come.

In effect, the LCV freeze assured truckers and railroads that investments in intermodal services would not be suddenly endangered by a highway policy lurch toward LCVs. The resultant lower risks made investment in intermodal facilities far more attractive, greatly contributing to current high growth rates.

Despite the freeze, however, large areas of size and weight policy on the NHS are not subject to Federal oversight. An NHS truck size and weight freeze would close this gap in Federal truck size and weight policy.

In doing so, it would further reinforce the national commitment to freight intermodalism by ensuring that Congress had comprehensive oversight of national truck size and weight policies. While nothing would preclude Congress from changing truck size and weight limits in the future, a freeze would guarantee the Congress' right to assess future changes before they are put in place.

The need for such Federal oversight is obvious. AASHTO itself, during the 1991 ISTEA debate, sharply questioned the states' ability to maintain control of truck sizes and weights. AASHTO referred to what it called "a repeated ratchetting upward from one size and/or weight plateau to the other". AASHTO called instead for truck size and weight policy to "be forged in the context of an overall national freight transportation policy".

It is especially important that Congress assert this systematic Federal oversight as the nation prepares to concentrate Federal highway spending on a new core "National Highway System".

2. A freeze is needed to protect the federal investment in the National Highway System (NHS)

American taxpayers are being asked to make a high risk bet on the NHS. The bet is that the cost of the NHS will not explode because pavements are surviving to their design lives. The fact is, many of the Interstate System pavements have not

survived to their design lives and it is costing billions of dollars. The non-interstate portions of the NHS are even more susceptible to premature deterioration, having often been constructed to standards below those of the interstates. And although the planned additional federal investment in the NHS is substantial, rapidly upgrading the engineering standards of the NHS is neither fiscally nor physically possible.

Given the experience of our existing Interstate Highway System, failure to limit rigorously the weights and sizes of the trucks operating across the NHS would be fiscally irresponsible. As weights increase, pavement damage will accelerate. Heavier trucks operating on the non-interstate portions of the NHS will, therefore, mean accelerated pavement deterioration and a lower return on the Federal investment in the NHS. Such pavement damage also implies pressure from the states with higher truck weight limits (and poorer pavement quality) for a greater share of highway funds.

Similar concerns drove Congress to establish the federal Interstate Highway System weight limit in the first place. They are still valid for that system. The Symms Amendment, which has encouraged states to declare themselves exempt from the federal Interstate System truck weight limit, must be contained before it produces yet more problems. And the same logic demands a federal limit for the non-Interstate portions of the NHS.

Concerns about the safety of longer and heavier trucks raised by highway safety, automobile, and insurance interests reinforce the case for federal controls. Nationwide public opinion polls suggest that the general public strongly shares these concerns. Majorities in the range of 75 to 80 percent believe that longer and heavier trucks are unsafe and make driving harder for the average motorists.

3. Congress needs to act quickly to establish federal oversight of truck size and weight limits because the states' control of these limits is eroding alarmingly

Consider the following:

- The Symms amendment has enabled eleven states since 1982 to claim new grandfather rights to issue "multiple trip divisible load" permits (permits for loads above the 80,000 pound Federal weight limit, based on the argument that the load is not divisible, i.e., cannot be carried in more than one truck). When multiple trip divisible load permits are issued for things like milk it is clear that the permits are essentially open-ended permission to violate federal weight limits;
- The number of divisible load permits issued has grown 375 percent since 1983;
- States have liberally re-classified favored commodities as "non-divisible loads"; for example, two states have decided that milk is non-divisible;
- Eleven states now allow super long trailers 57 feet or greater on the interstate (three more allow them on non-interstate roads) and more than half have legalized the them since 1990; and
- States continue to increase allowable weights on the non-interstate system (for example, just this spring West Virginia legislators tried to authorize certain coal trucks at weights up to 120,000 pounds).

Without a federal program to shore up the existing system of truck weight and size limits, those limits are at serious risk. While many truckers are not pressing to exploit opportunities to increase truck size and weight limits, elements within the trucking industry remain openly hostile to the LCV freeze. In a March 25,1994 letter, for example, the Western Highway Institute, an American Trucking Association affiliate, urged Congress to "free the private sector and state governments from federal limitations on gross vehicle weight caps and the LCV freeze".

Given this relentless pressure for higher limits, the existing gaps in truck size and weight regulation beget additional gaps, undermining the effectiveness of the existing regulation. Increased weights or lengths on some classes of highways inevitably generates a demand for comparable increases on the whole system (in the name of uniformity). And higher weights produce a demand for additional length (to fully exploit the economics of the heavier weight limit). More length generates demands to increase weight (in order to fully exploit the additional cubic capacity).

Worse, this dynamic spreads from state to state creating what AASHTO has called the "ratchetting upward" of limits. In this process, individual states are easily whipsawed by the pressure to increase size and weight limits. Time after time, sheer political clout amplified by arguments about luring business from other states produces weight or length increases. The result is a kind of truck size and weight "arms race" among states. The bill, of course, is ultimately delivered to the Congress and the American taxpayer.

A freeze would reinforce U.S. truck size and weight limits. Its basic philosophy is freeze rather than rollback. But it would shore up the existing regulatory structure to prevent further deterioration. In doing so it would, if enacted, prevent the system collapse that will become inevitable if Congress fails to act.

PREPARED STATEMENT OF DARRYL L. WYLAND, SENIOR VICE PRESIDENT, PUBLIC AND GOVERNMENT RELATIONS, AMERICAN AUTOMOBILE ASSOCIATION

The American Automobile Association, serving over 36 million members—20 percent of the driving public, appreciates this opportunity to comment on motor carrier safety and the need to limit truck sizes and weights on the National Highway System.

The AAA endorses HR 4496, the "Safe Highways and Infrastructure Preservation Act of 1994." Unfortunately, some segments of the trucking and shipping industries always seem to be pushing for heavier and longer trucks. The harsh reality is that while increased truck sizes and weights damage roads and bridges, jeopardize public safety, and concern the motoring public, they enhance company profits of some trucking and shipping concerns, thereby enticing them to push continually for bigger and bigger trucks.

Increases in truck sizes and weights tend to be irrevocable. Once allowed, bigger trucks are almost never banned—regardless of the damage or safety problems they cause.

AAA is not here to denigrate the trucking industry. Big, heavy combination vehicles are a fact of life on America's roads. They are a necessary fact. The trucking industry employs some 7.8 million Americans and serves every community in the United States.

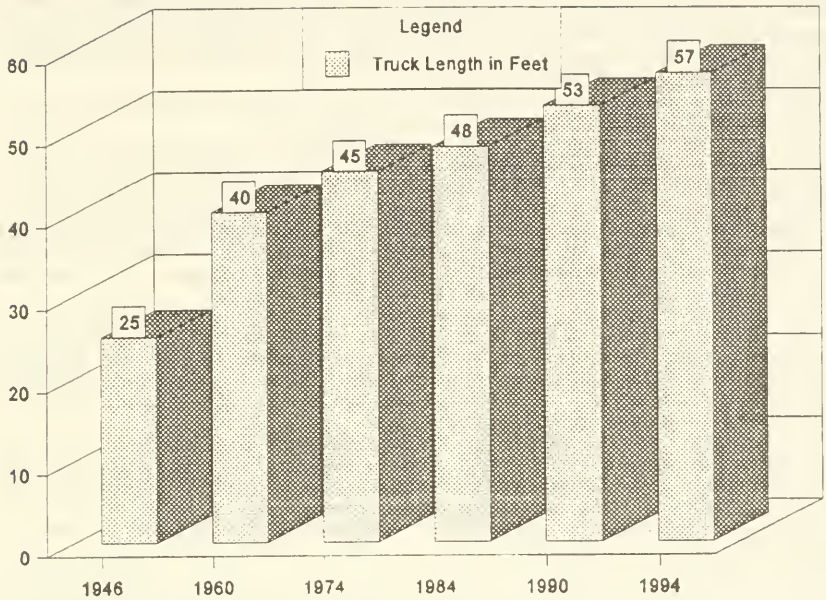
Some two-thirds of all American communities are served by no other mode of freight transportation. Of the more than 194 million motor vehicles registered for use on America's highways, truck combinations alone represent almost 1.7 million vehicles. Additionally, there are 3.8 million commercial trailers. Approximately 760 billion ton-miles of freight are moved annually by truck—one-fourth of our total freight movement. Without question, trucking is a significant factor in our national economy.

What concerns AAA and our members are efforts to obtain longer and longer trailers and increases in allowable weights. We believe that it is time to legislate a "cap" on truck trailer lengths and weight and 53 feet represents a reasonable compromise.

The Surface Transportation Assistance Act of 1982 mandated that states could not prohibit the use of 48-foot trailers; however, it did not prohibit the use of longer trailers. Prior to the STAA of 1982, the trucking industry's workhorse was the 45-foot trailer. It did not take the industry long to capitalize on the use of 48-footers and the move was on to get even longer trailers. Currently, 86.8 percent of the trailer fleet exceeds 45 feet. By 1985, 13 states allowed the use of 53-footers. By 1990, only 11 did not allow them. Today, only one state does not allow them. Now, we are witnessing a move to even longer trailers with over a dozen states allowing trailer lengths of 57 feet or longer.

Obviously, the trend toward longer trailers is motivated by economics. The move from 48 feet to 53 feet gave shippers 300 cubic feet of additional space. The 57-foot trailer offers approximately 8 percent more cubic capacity than 53-foot trailers. But where will it end? Sixty feet? Sixty-five feet?The Federal Highway Administrator has stated that the safety and infrastructure impacts of large combination vehicles have not been studied for several years; but believes that truck size and weight limits could be increased while the FHWA conducts new safety studies. This does not make sense to the AAA. We believe current size and weight limits should be held until there are sufficient data to determine the actual impacts the big rigs have on our highway system.

TRUCK TRAILER LENGTHS



AAA survey after survey find big combination trucks high on the publics' list of things they hate to face on our roads. Why? Quite simply, the big rigs are intimidating. These survey results are also consistent with a study released in 1990 by the AAA Foundation for Traffic Safety entitled, "Older Drivers' Perceptions of Problems in Freeway Use." That study found that older drivers have particularly acute problems interacting with large trucks. Trucks received the highest overall rating of concern regarding freeway driving among the factors in the study questionnaire, and focus group discussions confirmed the prominence of this concern. Sharing the freeway with large trucks, particularly under increasing congested conditions, makes the public uncomfortable. Several focus group participants indicated that this was the reason for avoiding freeways, and some changed travel plans to avoid periods of heavier truck traffic.

The U.S. driving population is getting older. Improvements in medicine and health care are prolonging usable years. Information from the Federal Highway Administration discloses that licensed drivers 55-59 increased in number by 26.6 percent between 1970 and 1992. Licensed drivers 60 and over increased by 122.6 percent over the same period, and for the group 70 and over, the growth was a whopping 225.3 percent

With an increasing number of older Americans living in the suburbs, fewer will be able to give up access to their automobiles. As it is, more than 80 percent of trips made by those 65 and over are in an automobile, and that reliance is growing.

Trucks are over-represented in fatal collisions. Over the past several years, combination trucks have experienced fatal crash involvement rates nearly twice those of passenger cars. In 1992, according to National Safety Council (NSC) data, passenger cars constituted 74.2 percent of the registered vehicles yet were involved in a much smaller percentage of the fatal collisions, (57.9 percent).

Medium/heavy trucks had the opposite experience. They constituted 3.9 percent of the vehicles registered and were involved in 7.9 percent of the fatal collisions. Of the total deaths due to crashes involving a large truck and a passenger vehicle in 1992, 98 percent were occupants of the passenger vehicle. The laws of physics are irrevocable. The severity of motor vehicle collisions is a direct result of the energy that is dissipated by the crash. When an 80,000 pound truck crashes with a 2,700 pound automobile, the truck has 30 times more energy and the truck simply overpowers the automobile. It's like hitting an ant with a sledge hammer!

Both AAA and the trucking industry are trying to lessen the safety threat posed by the disparity in vehicle sizes on today's highways. AAA, the American Trucking Associations, and the National Private Truck Council in partnership with FHWA

are producing and distributing educational material on how to safely share the roads. We see this campaign as the beginning of a partnership among automobile drivers and commercial vehicle drivers, helping each to understand the needs and limitations of the other. We have also worked with the industry on incident management programs and joined with them this past year to work on the Washington Beltway Area Highway Safety Initiative.

But this does not mean we won't raise our voices to object when the trucking industry attempts to obtain even bigger and heavier trucks.

Over the years the trucking industry has repeatedly contended that the use of longer trucks would reduce the number of trucks on the roads, thereby reducing energy use, air pollution and highway congestion. This argument was used by the industry back in the 1970's during the energy crisis when trucks were allowed to carry cargo in excess of existing weight limits. The same argument was used during the debate on the 1982 Highway Act, which mandated the 80,000 pound weight limit; the use of twin trailers; and the use of 484oot semi-trailers; and, was used most recently in the industry's push for expanded use of LCVs.

But registration figures for combination trucks (as noted in FHWA's Highway Statistics), demonstrate that larger trucks did not lead to reduced combination truck registrations. Since 1981, truck registrations have increased 31.2 percent. More importantly, the growth in highway freight movement since 1981 has been paralleled by increased truck travel, not increased tonnage per vehicle. Between 1981 and 1992, the VMT has increased 43.2 percent.

Allowing bigger trucks on our highways would provide economic benefits to both shippers and truckers, but only at high costs to motorists. Motorists and other highway users would bear increased costs of infrastructure repair and maintenance, and experience additional collisions resulting from reduced safety margins.

Is this fair? AAA does not believe it is. Limits on truck sizes and weights are needed and they are needed now.

Our investment in the NHS represents a strategic investment in America's future. To protect that investment we must allow for the planning, implementation, and operation of an adequate infrastructure to guarantee the safe movement of people and goods rather than permitting the continual ratchetting upward of truck size and weight limits as we have seen over the years.

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